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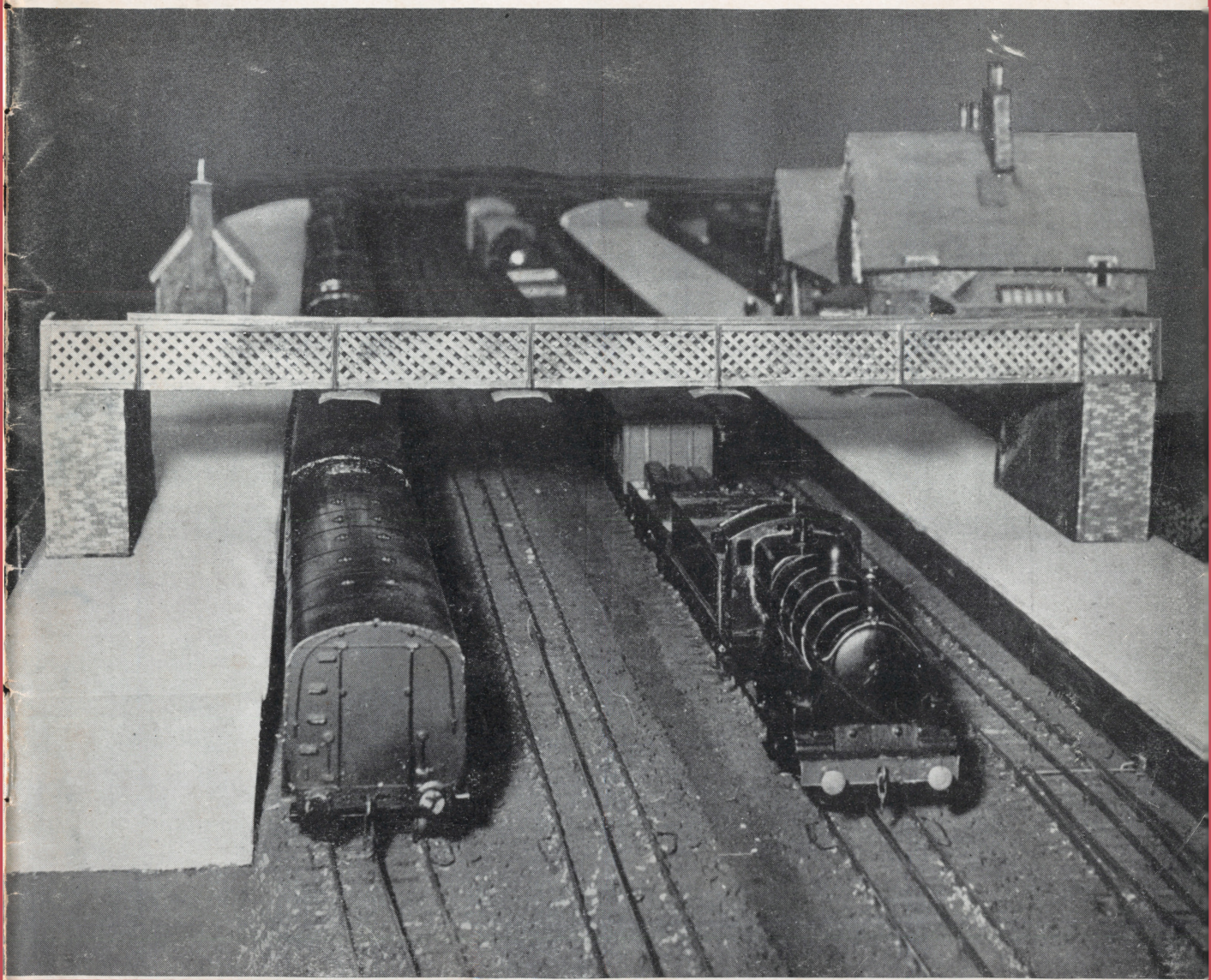
The MODEL RAILWAY NEWS

VOL. 29 No. 338 FEBRUARY 1953



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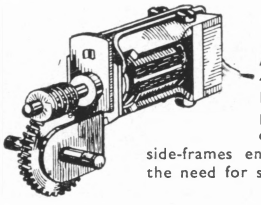

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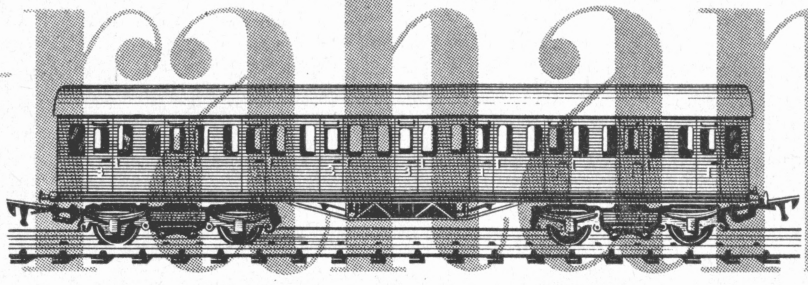

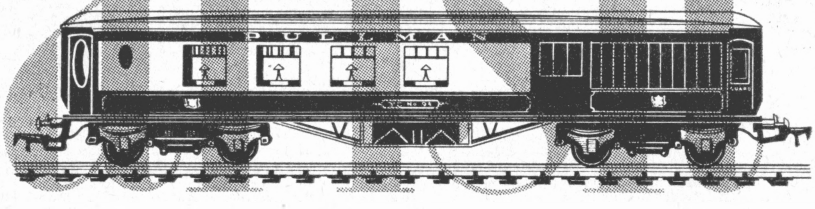

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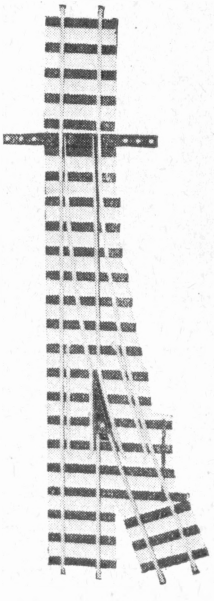

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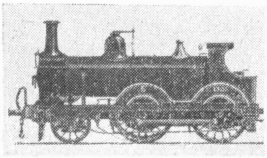

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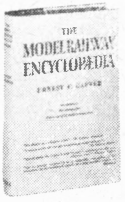

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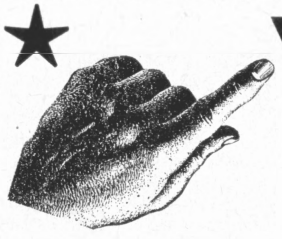

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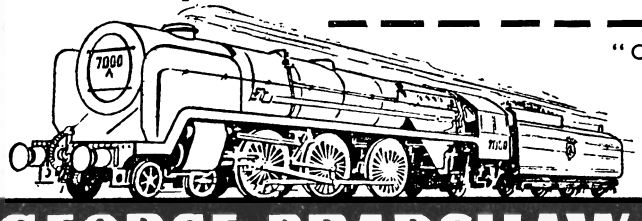

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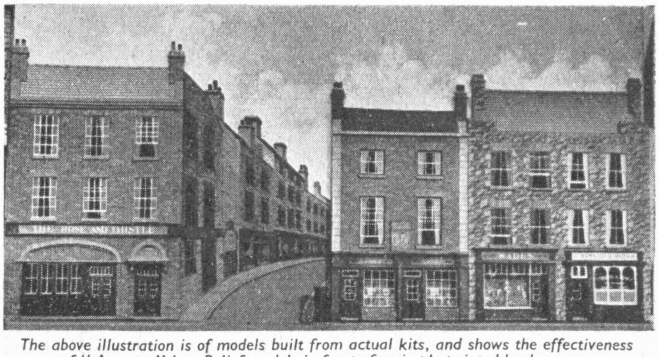

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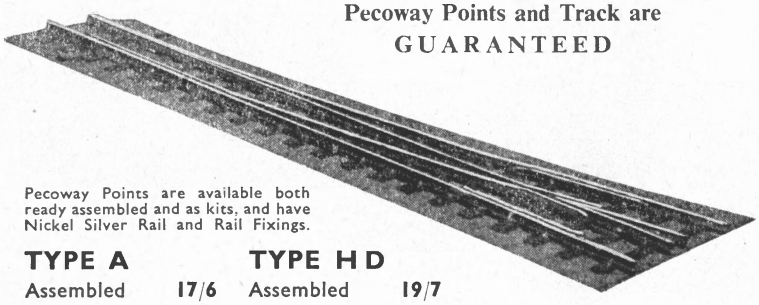

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Kit	11/11	Kit	12/8

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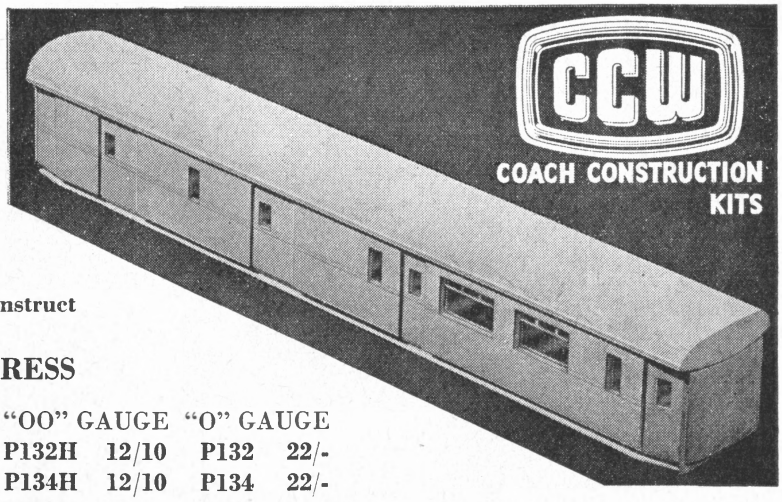

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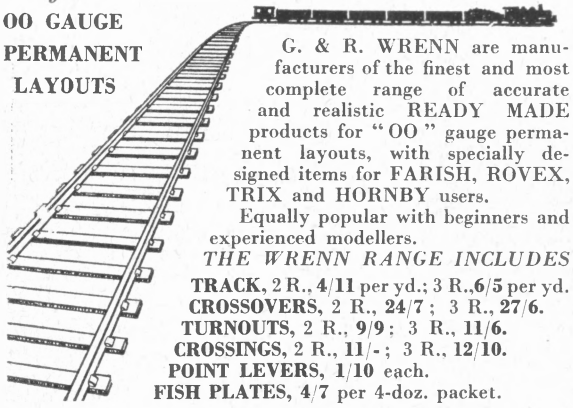

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COVER PICTURE

This is the station on the Manchester Society's "O" gauge layout, exhibited at their recent exhibition. The track has centre third rail electrification at the moment but can easily be converted to 2-rail when the time comes. The footbridge and station buildings modelled on those at Baguley, Cheshire Lines Committee, are excellent first attempts by Barry Peterson, a newcomer to the hobby.

In this view a main line express pauses in its journey, whilst on the central through track a "goods" rumbles by hauled by L. & Y. 0-8-0 compound No. 1477 owned by P. B. Booth.

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The MODEL RAILWAY NEWS

19-20 NOEL STREET, LONDON, W.1.

THE scenic accessories on a model railway seem often to reveal the fact that the owner is capable of *seeing*, but not of *observing*. We are not so much concerned with the details and arrangement of the buildings which go to make up the "towns" and "villages" served by the railway; often, these are charming and effective, and the worst criticism that can be levelled at them is that they are, for the most part, too crowded together.

Our comments in this note apply to those details which, when present, are essentially part of the railway and include such things as signals, signal-cabins, level crossings and the like. So frequently, one sees these accessories placed in impossible situations that cannot be tolerated by anyone who knows something of their functions.

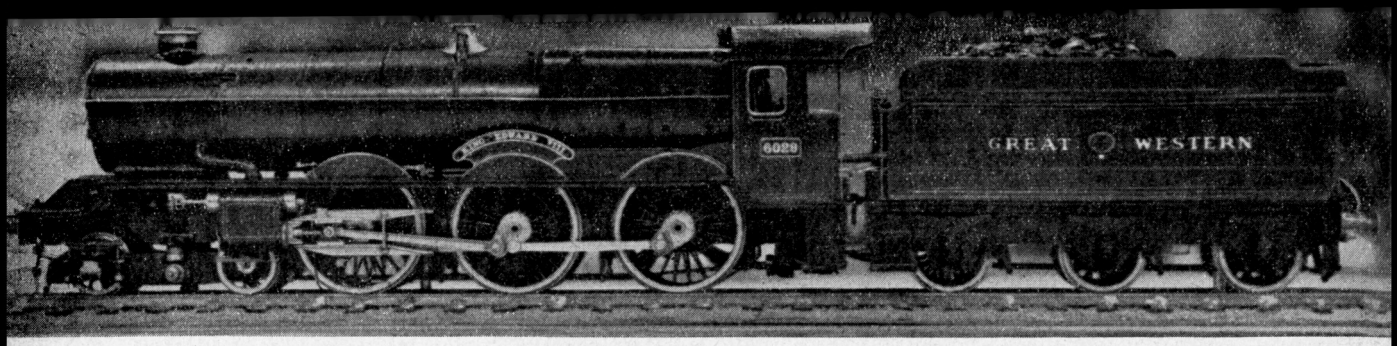
Not long ago, we were examining an "exhibition" layout on which there was a considerable quantity of scenic detail, apart from houses and factory buildings, and we were rather astonished to note some quite serious errors which suggested that either the builders lacked "railway" knowledge, or they had seen certain features without observing the circumstances in which those features were used. The main—and only—station on the layout was a through one with a signal cabin at one end. There were a few signals, not all of which were in their right places, and we noticed that every one of them had a white, diamond-shaped board fixed about half-way up the post ! Even a starting signal placed alongside the signal cabin was adorned with that white diamond, thereby proclaiming that. presumably, the builders of the layout were unaware that this is a sign that the signal is connected, by means of track circuits, with an indicator in the cabin to inform the signalman when a train is standing at the signal. This is hardly necessary for a signal that is just outside the signal cabin.

However, a more serious error was a set of level-crossing gates placed out in open "country," which, after all, is just where such gates are often to be seen. But they were right out of sight of the signal cabin, and there was no gatekeeper's cottage, or hut, anywhere near them; neither were there any signals to protect them.

To people who have good knowledge of railway operation, errors of this kind merely make model railways look ridiculous or, at best, like children's toys. Unless railway accessories can be accurately represented they are far better omitted.

OUR NEW ADDRESS

We call the special attention of all readers to our new address, where we are now comfortably settled down. All future communications for the Editorial, Advertising, Publishing, Sales, or Subscription departments should be addressed to 19-20, Noel Street, London, W.1. Telephone: GERrard 8811.



Champion of the show. Mr. T. Stanton's "EM" gauge G.W.R. "King Edward VIII"

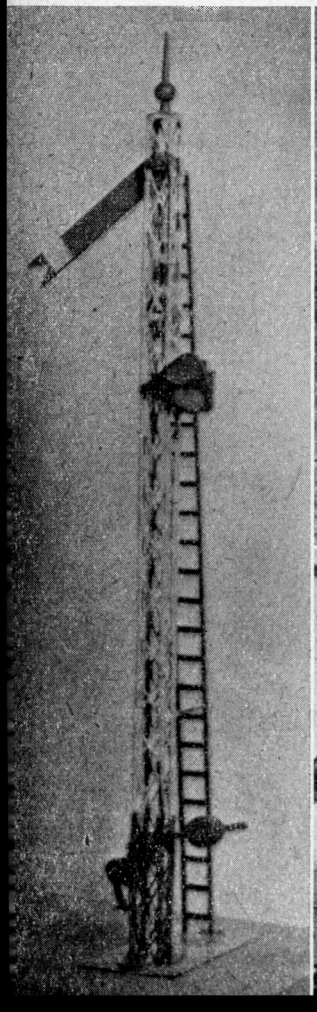
AT THE MANCHESTER EXHIBITION

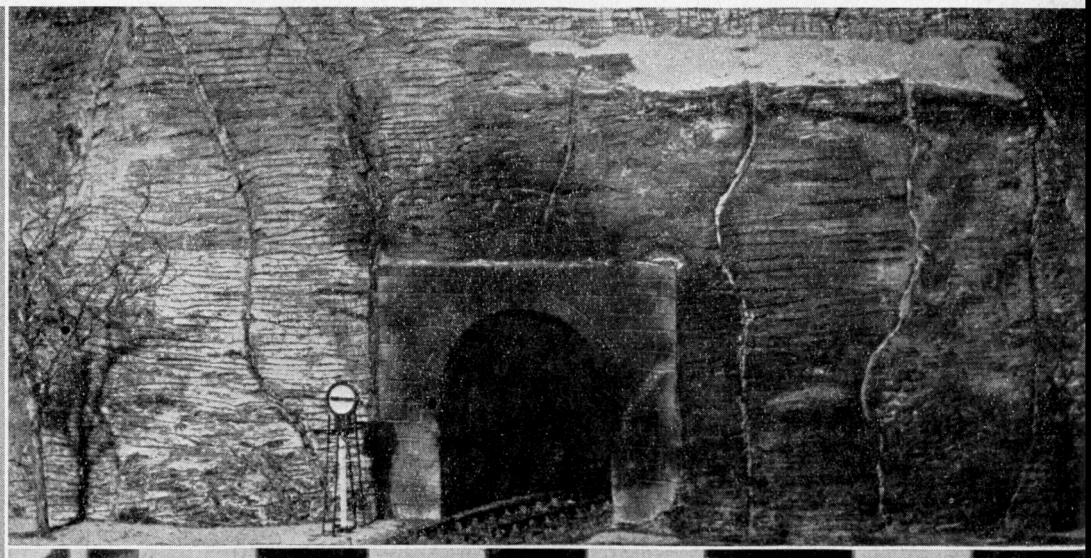
THE model railway world and the Manchester public have come to expect the Manchester Society's end-of-the-year exhibition and once more they were not disappointed. The Society successfully presented their 1952 show in the Corn Exchange just before Christmas.

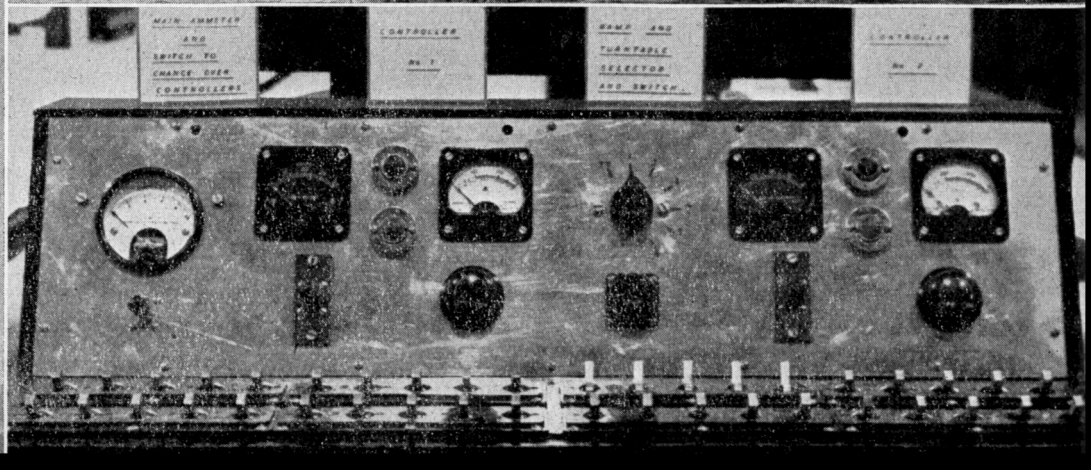
Of the models we have no complaint, for they provided visitors with a generous portion of instructive entertainment. The layout of the numerous stands, however, left one in a rather confused state of mind, though the problem of setting out the exhibition must be a tricky one in the triangular hall which is used. The scaffolding barriers around the more fragile groups were effective if unsightly and certainly made our photographic programme even more comfortable than we had hoped, as did the ample circulating areas.

As usual in Manchester, one found a predominance of EM gauge in the 4-mm. models and a liberal dose of pre-grouping, though the Big Four were well represented and, at last, a few B.R. standard designs are appearing. We particularly noted Mr. A. Swindell's (Leeds M.R.S.)

Below left: Furness Railway signal in 4 mm. scale by Mr. W. A. Shillcock (Merseyside M.R.S.). Top: "O" gauge tunnel mouth by Mr. G. Pember. Bottom: John Langan's control panel made from government surplus parts.



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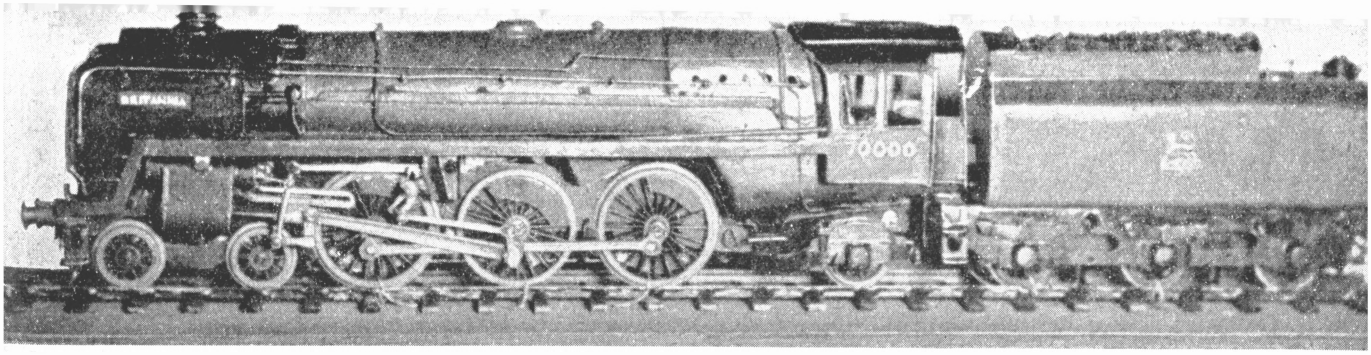


Mr. A. Swindell's " OO " gauge " Britannia "

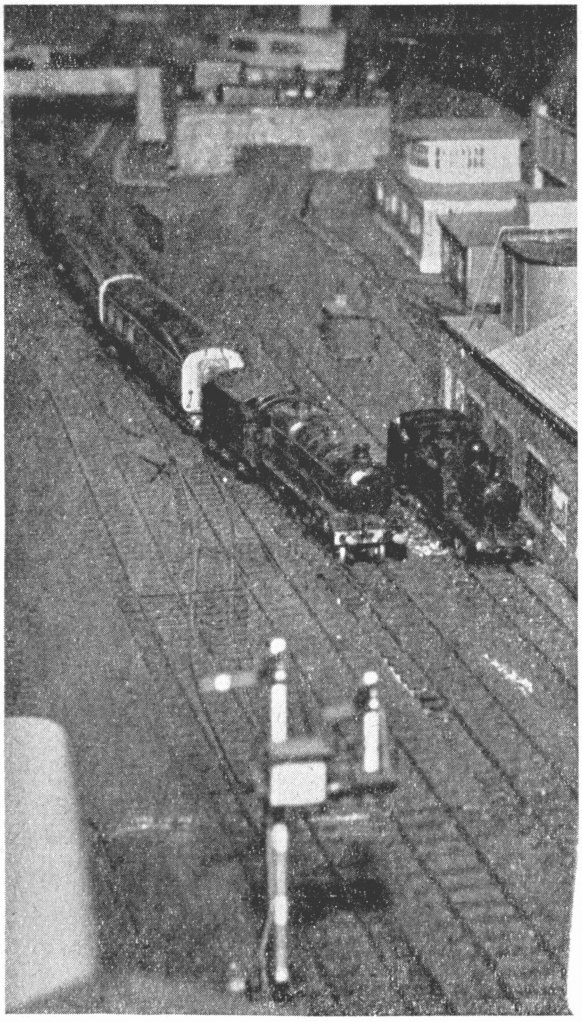
" OO " gauge " Britannia " which received a diploma, and a " OO " gauge model of the 0-4-4-0 diesel electric No. 10800 owned by Mr. F. L. Sowersby.

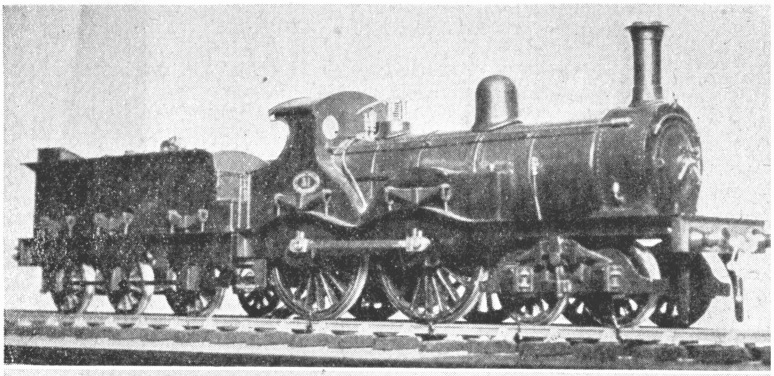
Of the working layouts, the new " O " gauge track under construction kept a good crowd round its barrier and was running extremely well. Perhaps the most interesting thing about the trackwork on this layout is the fact that the points are laid without any check rails so that all types of wheels can be used. Smooth running through the frog has been achieved by using a small-angle crossing which enables the diverging track to remain straight for several inches through the frog, so that there is little tendency for wheels to strike the nose of the frog. Whatever the " standards " critics may say, the idea certainly works in practice !

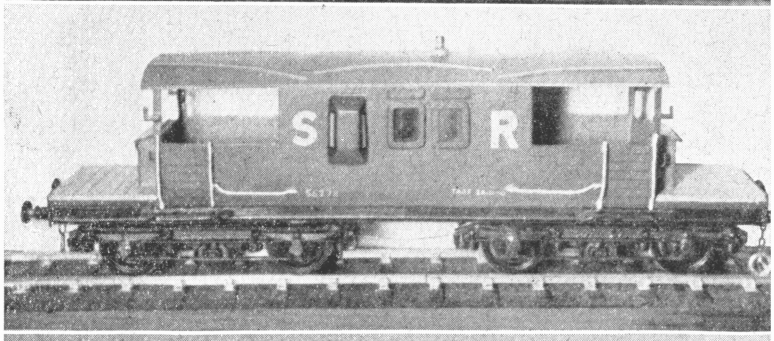
" The Dog Track " provided a counter attraction in another part of the hall. This EM gauge layout is divided into three main sections; Grange Street terminus, based on G.C.R. practice and owned by Mr. J. Edgar, the through station in " Southern " style by Mr. R. W. Inkster and " the other terminus " based on Midland practice, as yet just track and platforms, owned by Mr. Sidney Stubbs. The layout uses 24 volts on the 2-rail system and is so named for its use by the Manchester efficiency hounds—a band of members who, originally led by the late Alex Jackson, have been hunting down snags, developing technique and generally raising the standard, particularly in connection with electrical control and small motor design.

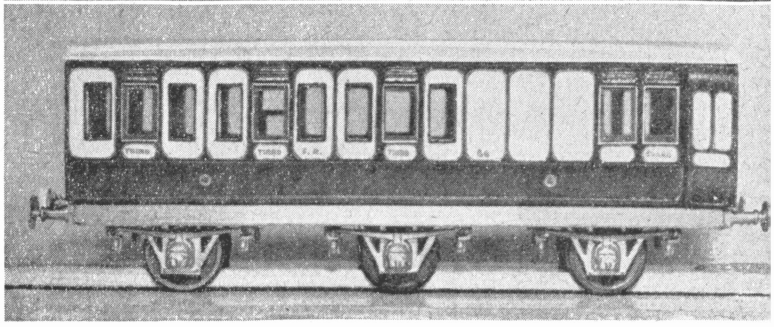
The tip-top model in the competition section was Tim

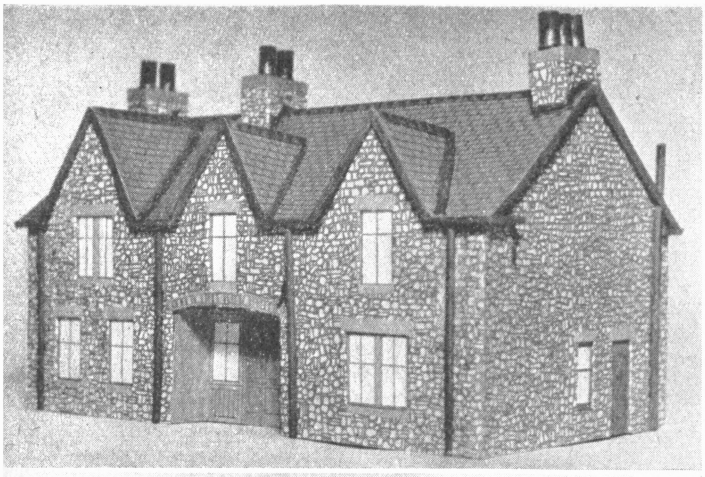
Below left : Train leaving Grange Street Station on the " EM " gauge " Dog Track." Top : L.C. & D.R. rebuilt Crampton in 7 mm. scale by Mr. A. J. C. R. Goodall (Croydon M.R.S.). Centre : S.R. bogie brake van by Mr. G. U. Briggs, " O " gauge. Bottom : One of the coaches in the " EM " gauge Furness train under construction by Mr. R. D. Pochin.

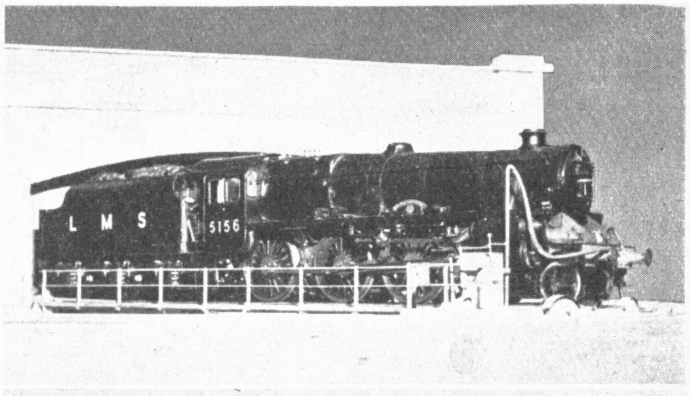


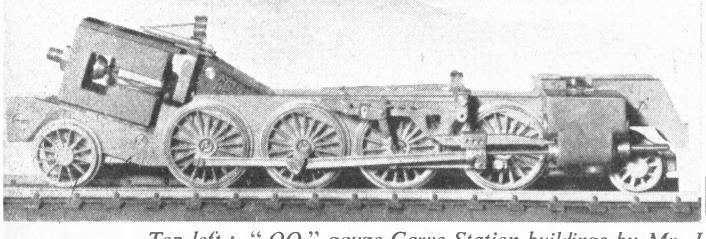


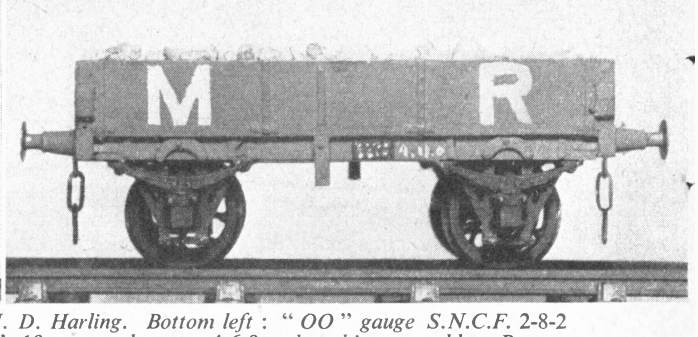












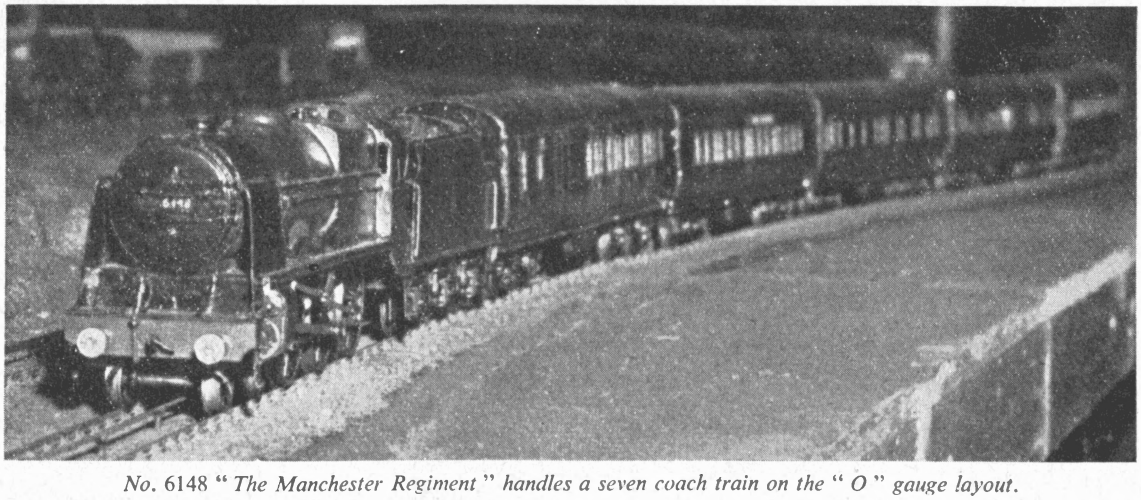
Top left : " *OO* " *gauge Garve Station buildings by Mr. J. D. Harling. Bottom left* : " *OO* " *gauge S.N.C.F.* 2-8-2 *chassis by Mr. P. B. Booth. Top right* : *Mr. E. R. Morten's* 10 *mm. scale steam* 4-6-0 *and working turntable. Bottom right* : *Mr. T. Horn's Midland ballast wagon in* " *O* " *gauge.*

Stanton's beautiful EM gauge G.W.R. *King Edward VIII,* which was awarded not only the Championship Cup, premier award for the whole show, but also the Pochin Cup and the Young Award. We hope the photograph reproduced here will show at least some of the exquisite work in the model. Our congratulations go to Mr. Stanton not only for his three awards, but, in addition, for the support he is giving to the hobby; it is craftsmanship of this calibre which must slowly but surely convince the popular press and the general public that the difference between toy trains and model railways is an appreciable one !

As before, many clubs from surrounding towns had stands at Manchester. The Model Railway Club from London, the Merseyside M.R.S., Chester M.R.C., Leeds M.R.S., Narrow Gauge Railway Society, Huddersfield Railway Circle and the Talyllyn Railway Preservation Society exhibited models, whilst the Manchester branch of the Stephenson Locomotive Society was represented by a display of its publications and notices describing their organised rail trips. The Lancashire & Yorkshire Railway Society displayed a selection of photographs depicting that line, mostly pre-grouping.

The trade was there too. Douglass Models, of Halifax, specialising in narrow gauge equipment, G. N. Slater, of Timperley and Halfone Models had stands.

Exhibitions of this kind require a vast amount of spare-time work by members; but it is work well done and time well spent, because the result of their efforts must be of great benefit to the hobby. The most important function of this result is, we feel, its value as an inspiration to the modeller and the " lay " public. It can be a tonic for waning enthusiasm; it can open up a new world of recreation for the newcomer.



No. 6148 " *The Manchester Regiment* " *handles a seven coach train on the* " *O* " *gauge layout.*

NOTES OF THE MONTH

International Standards

Last September, a meeting was held at Rudesheim, Germany, to investigate the possibilities of drawing up a set of standard dimensions that would apply to the model railway hobby throughout Europe. The idea is a laudable one, and if it could be universally applied it would simplify, if it did not overcome all the existing difficulties due to the differences of scale and gauge used by European manufacturers.

As is already well known, the British Railway Modelling Standards Bureau, since 1941, has done a great deal of work in this direction and has recommended standard dimensions which have been widely adopted in Britain, though not, as yet, by all British manufacturers. It is much to be regretted that circumstances made it impossible for any British representation to be present at the Rudesheim meeting, but we know that full information regarding the B.R.M.S.B. standards had been sent there.

It seems to us that one of the first things to be done is to agree to a universal method of assessing the scale unit. The Englishman regards it as so many millimetres, or some fraction of an inch, to the foot, which is entirely confusing to our Continental friends, who use a scale of 1/24, 1/48, 1/87 or whatever it may be according to the *size* of the model concerned. If this difficulty could be removed, the rest would be comparatively easy.

Model Railway for Norwich Enginemen

The Norwich Branch of the British Railways Mutual Improvement Classes for Enginemen has recently acquired a complete working model railway designed so that many of the working conditions in the Railway Rule Book can be enacted in miniature by students of the class. The layout was donated and installed in their instruction coach by Trix Ltd. These particular trains were selected because the system allows for a demonstration of the regulations governing the single line working which is a feature of railway operation in East Anglia.

At a demonstration in Liverpool St. Station, London, members of the Norwich class were " working to rule " for the benefit of onlookers. First, Rule 55 showed us how the crew protect their train when brought to a stand at a signal. Next, Rule No. 183 explained procedure when engine assistance is required to a train which has been stopped on a running line due to engine failure or any exceptional circumstances. Lastly, they carried out Rule 180, where trains using a line or lines, and running in both directions, must be warned of an obstruction.

Footplate staff seeking promotion are examined on their knowledge of the Railway Rule Book and a model railway such as this is an excellent method of illustrating not only the normal working of a railway, but also the sudden emergencies which may arise. The layout is made up from standard Trix components and has full signalling and scenery. All the points and signals are electrically controlled from " boxes " along the line, and the locomotives are driven from the lineside by student enginemen.

The mutual improvement classes have been in existence for half a century and are a feature of motive power depots all over British Railways. The Railway Executive provides accommodation, literature and films but apart from this assistance the classes are entirely voluntary and are kept going by subscriptions from the members.

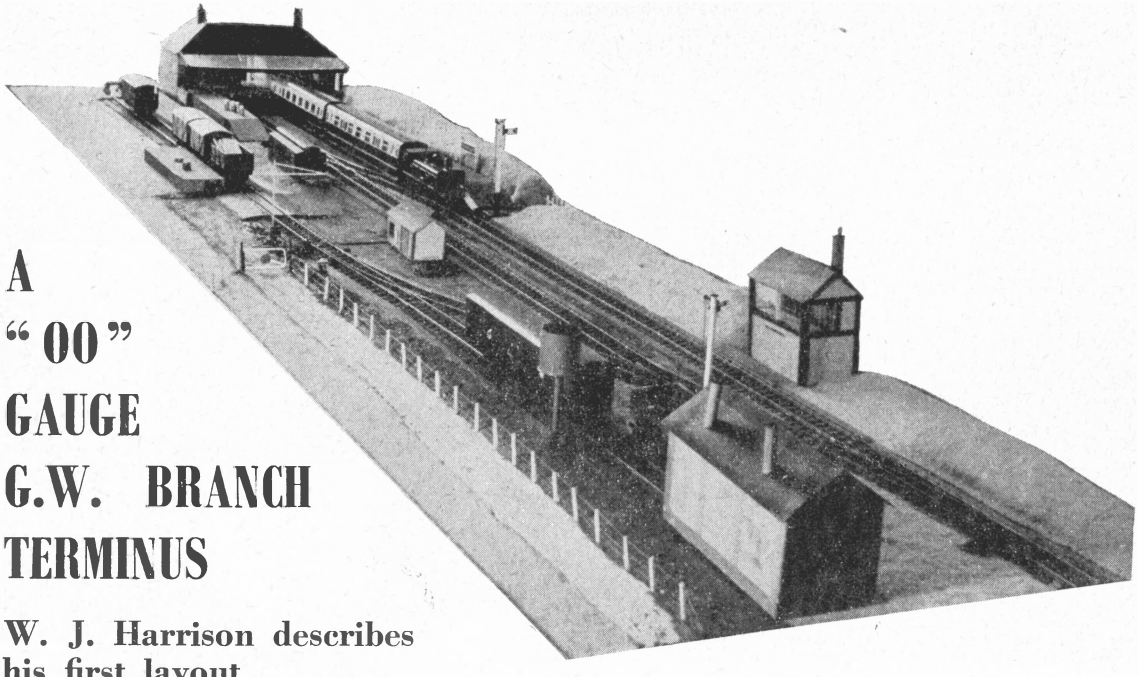
Light Engines on the Main Line

We sometimes wonder what rules, if any, govern the working of light engines. This thought is prompted by our own observations, and we have no doubt that many of our readers have noticed the same puzzling features that we have and are just as much at a loss as we are to provide an explanation.

What we have in mind is the fact that a number of trains, usually freight trains, work into London from the provinces and are hauled by engines stationed at or near the departure points of the trains. Subsequently, most, if not all, of the engines return to their " homes," but running light, presumably the whole way. There can be no objection to this practice in cases where the " home " depots are some thirty miles, or so, from London; but when the said depots are anything from fifty to two hundred miles from London, the matter seems to us to assume a different complexion.

More than once, on Sunday afternoons, we have been amused and even thrilled by the sight of two heavy freight engines, one on the Fast line the other on the Slow line, travelling neck-and-neck and very obviously indulging in a friendly race, their speed being rather over than under 60 m.p.h.! So far, so good; we thoroughly enjoyed that race, each time, while it was within sight. But on second thoughts we recollected that those engines were bound for a home shed well over 100 miles away !

Where are the economics of such a practice ? Were there no balancing return workings on which those engines could be more usefully employed, either singly or as a pair ? If not, was there no possibility of the two engines being themselves coupled together and returned, light, if necessary, but on one line instead of two ? We have yet to find the answers to these questions. Meanwhile, we can only guess and, like many other " laymen," chafe at having, in the end, to foot the bill for which, on the face of it, looks very like a lack of co-ordination somewhere. Perhaps, two light engines do not matter to any great extent; but one recent afternoon we noted no fewer than seven within about 90 minutes, and all travelling in the same direction. This struck us as being occupation of the track, wear and tear of engines and track and an increase of signalman's duties, all of which could have been avoided.



A "00" GAUGE G.W. BRANCH TERMINUS

W. J. Harrison describes his first layout

IT all started one day about a year ago when I was convalescing from a heavy cold. I was taking the air for the first time for a couple of weeks when I saw a shop window full of "OO" gauge rolling stock and track. I spent a few minutes examining it and something moved me to go in and start asking questions. The outcome was that I arrived home with four yards of track, an open wagon and a van, and several pockets full of literature, and everyone thought I had become delirious.

I suppose I am not the only person who has had vague misgivings about "OO" gauge. My experience was limited to large solid 7 mm. scale track and stock, and I could not avoid the feeling that for my hamfisted self to start work on these tiny things was perhaps a little optimistic. However, after a few days spent looking at my purchases, I bought some more literature and sat down to study. The first thing that struck me was that, however small the individual items may be, the whole, if it is to bear any resemblance to reality, will take up more space than the uninitiated might think. It soon became obvious that, in the room at my disposal, anything at all extensive was completely out of the question unless I was prepared to construct it layer-cake fashion. In short, there were limits to what could be done in a space 15 ft. by 5 ft. (yes, 5), and a country branch was the evident answer. Even this would be an awfully tight fit.

Unfortunately, domestic reasons have prevented the company from obtaining possession of its right-of-way and so far all we have is the branch terminus and a few pieces of rolling stock. The former is built on a $\frac{1}{4}$ in. plywood base on cross bearers, ready to go on to the trestling. It measures 5 ft. 6 in. by 18 in. It is, naturally enough, very small and very simple consisting of a run-round loop and a goods siding, with engine shed spur, all tailing off into a single line. The track is partly commercial and partly home-assembled. I found quite early on that, however easily points can be assembled in a jig, to do so without is another matter. I therefore fell before temptation and bought them locally, ready made. As I was starting from scratch I decided on two-rail, and spent many hours trying to think it out, until I finally did the obvious thing and bought a book which made it crystal clear in a few minutes. Points and signals are manually operated at present on the reach-over-and-pull principle. To bring them to a lever frame is a job for the future, but for the time being the ground levers work very well.

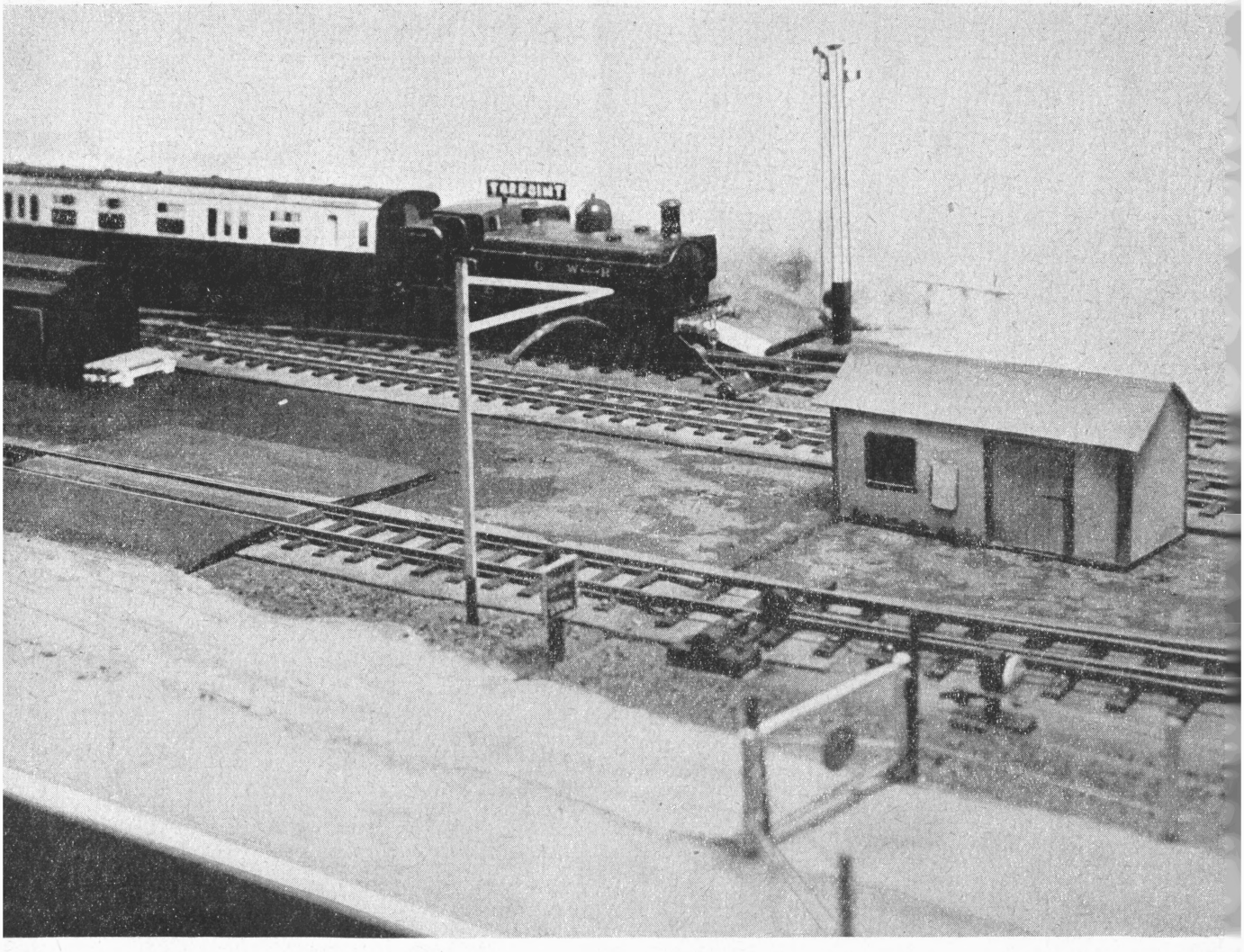
The small passenger station and platform are quite undistinguished, and the goods depot is a loading bank with an old coach serving as an office. The engine shed is a one-road, one-engine erection, but serves its purpose very well, and there are a few trimmings like a coal stage, water tower, etc.

The passenger rolling stock consists of two Great Western corridor coaches and a brake-end, rather unsuitable for our type of line, I fear, and how they will fare on our curves, which will be horrible, I have severe doubts. Still they look very nice and taught me a lot about assembling from kits, especially the one which had to be painted and stripped four

times before it came out right. Similarly the goods stock—particularly a G.W. 14 ton brake van that looks fine standing around, but has a lovely drunken rolling gait, due, I suppose, to an axle box drilled out of true. The sole motive power at present is a commercial pannier tank a very fine little job which will trot along the portable track (the original four yards pinned to battens) with all I can put behind her.

Future plans are for a point to point run with a loop for continuous running if it can be fitted in, which I rather doubt. I think I can ease the curve round the end of the room to about 2 ft. 3 in. radius, and whether this will allow bogie stock to run remains to be seen. I have to do some experimenting when the chance offers, for I like my coaches, and there is also a home-made Siphon " G " to which the same remarks apply.

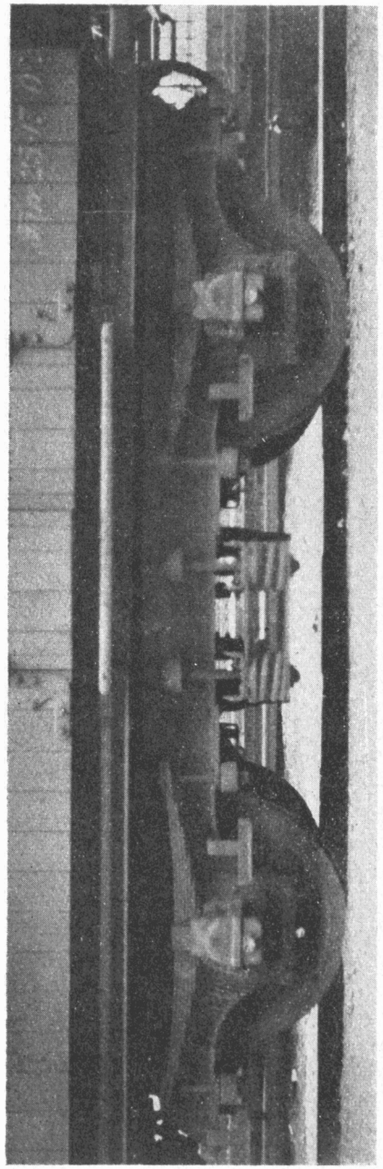
This all seems rather first person singular, but if it serves as an encouragement to anyone who is trembling on the brink it may be of some use. With a reasonable amount of care and forethought, this small stuff really works, and works well. Whether I should choose it if I had room for anything bigger I don't know, but after the last twelve-months' experience I'm inclined to think I should, because it has a fascination all its own. Moreover, I have been pleasantly surprised at what can be done with a few pieces of wood and odds and ends in the way of details, although one of my few claims to knowledge of the subject is a fair eye for what looks right and what doesn't. So far as the running is concerned there seems to be no difficulty as long as the rail surfaces and stock are kept properly clean, and this is quite a simple job. My little outfit will never aspire to " Madder Valley " heights, I fear, but it has given me many happy hours, and that after all is why we do these things.

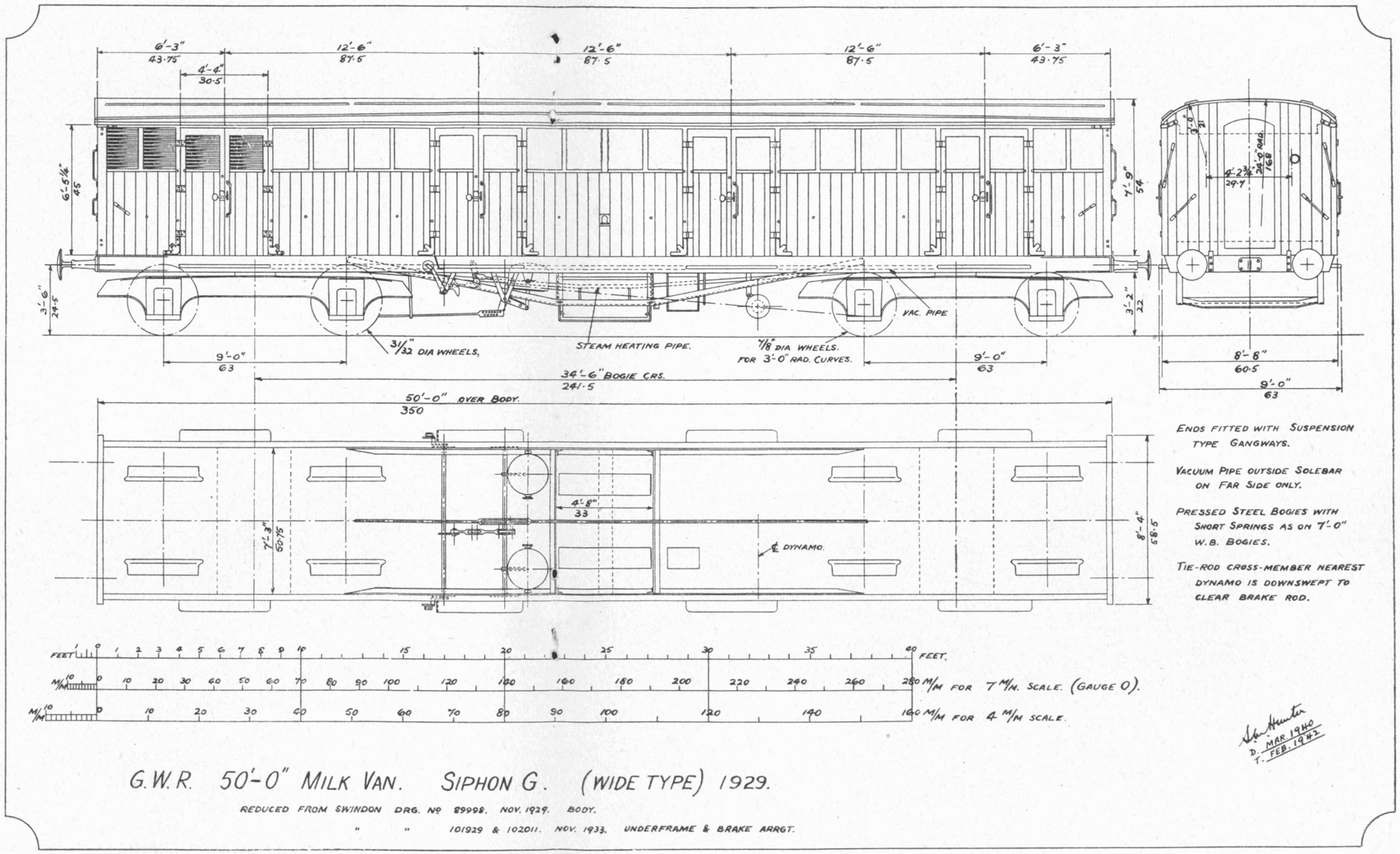


GREAT WESTERN RAILWAY "SIPHON G" (1929 WIDE TYPE)

DRAWING By S. M. HUNTER

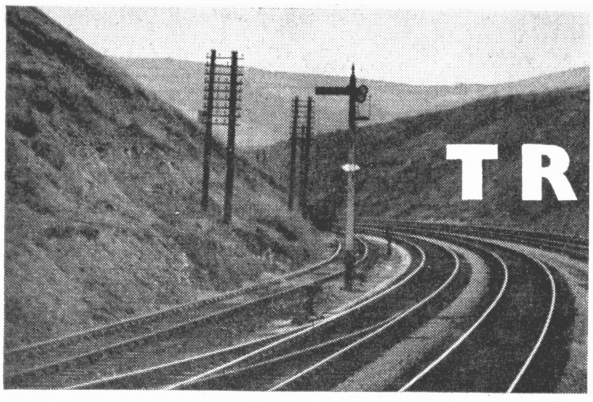
THE drawing is reproduced full size for 4 mm. scale. Note that the underframes of these vans are different from those of the three types shown on pages 212 and 213 of the October, 1952, MODEL RAILWAY NEWS. The wide "Siphon G" is fitted with 9 ft. wheelbase pressed steel bogies with short springs. The photograph is by K. D. Gledhill and shows one of these bogies on "Siphon G" No. 2786, at Dawlish, in 1937.





G.W.R. 50'-0" MILK VAN. SIPHON G. (WIDE TYPE) 1929.

REDUCED FROM SWINDON DRG. Nº 89998. NOV. 1929. BODY.
" " 101929 & 102011. NOV. 1933. UNDERFRAME & BRAKE ARRGT.



TRACKWORK IN WESSEX

by Michael G. Foster
A.M.I.E.E.

MUCH has been said and written about trackwork for model railways, and as readers of a previous article on the Westcester and Abbotsbridge division may recall, this line has used most types. It started with tinplate, progressed to a mixture of Bassett-Lowke "Lowko" and small scale permanent way. Then the division went "OO" and used brass and nickel-silver rails fixed down by a variety of methods including Peco, which it found very good. Now, after a return to "O" gauge it uses Rocket-Precision's fine scale bull-head section rail and results have been eminently satisfactory.

It is the writer's hope that this series of notes will be of assistance to other model engineers in both 4 mm. and 7 mm. scales, and whilst preferring 2-rail operation, an endeavour has been made to cover the various methods of construction used on the division without particular reference to different forms of electrification.

In the earliest stage after tinplate, tracks were spiked down direct to a "table top" and although this worked well enough it is not a method which the writer would recommend except in certain special cases.

When the division went "OO"—in its pre 2-rail days—track was constructed by the then conventional method of soldering brass or nickel-silver rail to brass sleepers, filling in to the requisite number of sleepers with cardboard ones, and ballasting the resulting track with Spratt's "Parrot Grit." This was the only substance available at the time, but a much finer ballast, such as that supplied by ERG is to be recommended. Fig. 1 shows part of the "OO" gauge track laid by this method. The picture reveals that once again the "table top" method of construction was adopted.

At this stage results were reasonably satisfactory, but before a great deal of operational experience could be gained the division was moved to other quarters and when this move took place, the opportunity was seized to convert to 2-rail and to use a partly open top baseboard construction .

Construction of the "OO" Track

In the early 2-rail days, the Westcester and Abbotsbridge division tracks were laid on $\frac{1}{2}$-in. planed timbers supported on 2 in. × 1 in. battens. The track was laid in the following manner, which produced a cheap, realistic and very strong road suitable for 2- or 3-rail operation or for use with the stud contact system.

A line corresponding to the position of one rail, normally the rail which would be the inner one of any curve being laid in the section, was carefully drawn on the baseboard. Sleepers were prepared from card approximately $\frac{1}{16}$ in. thick. The card was marked out in strips 36 mm. wide with an extra line 8 mm. in from one edge. The 36 mm. strips were then cut in a print trimmer to a width of 4 mm., thus producing scale sleepers 9 ft. × 1 ft. The sleepers were placed in position as shown in Fig. 1, the 8 mm. line being laid on the line of rail, and a $\frac{1}{2}$-in. brass gimp pin inserted through each sleeper so as to leave about $\frac{3}{16}$ in. of the pin protruding above the sleeper. The rail was then soldered to these pins which subsequently had their heads removed. To lay the second rail, a gauge block

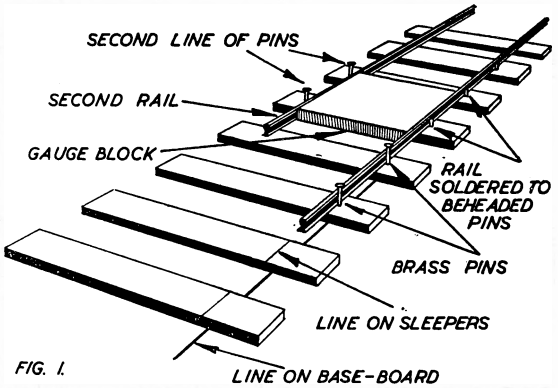


FIG. 1.

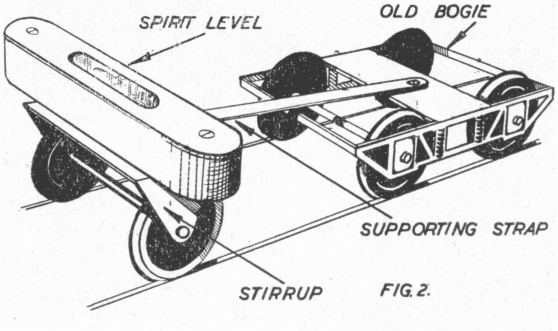


FIG. 2.

made of aluminium was inserted in the " four foot way " with the second rail outside it; further pins were driven in and treated as before. Finally the running surface of the rails was smoothed off with a fine file. The resultant track when painted a rusty brown and ballasted presented a very realistic appearance and stood up to a lot of hard running. It also possessed the advantage that it could be levelled very accurately with the help of the device illustrated in Fig. 2. This consisted of a pair of wheels mounted in a U-shaped stirrup, the greatest care being taken to ensure that the axle and the top of the stirrup were absolutely parallel. A strip of brass was soldered to the underside of the top of the stirrup and its other end rested on the bolster of a discarded bogie. A small spirit level was fixed to the top of the stirrup, and when the device was pushed slowly along the track, any discrepancy in level between the two rails showed up at once. A light tap with a hammer or a little leverage under the rail with, say, a screwdriver corrected this and a really level track was assured.

The disadvantage which the line possessed was that certain parts of the $\frac{1}{2}$-in. timber, although alleged to be seasoned, moved with changes of temperature and humidity and this had a bad effect on pointwork. The trouble was, however, overcome at a later stage by laying the track on track-boards which are described below in connection with 7 mm. track. The Peco track was laid as recommended by the manufacturers and was found very nice to use and to possess good running qualities.

When the changeover to 7 mm. scale was decided upon, it was not possible to obtain suitable wood for a " table top " baseboard, and in any case this was not considered desirable. Those parts, therefore, which were required to be filled in were covered with a $\frac{1}{4}$ in. building board. As a result of experience gained, however, a completely open top construction would be used for future permanent sections.

Using " Track Boards "

The division was fortunate in having available a supply of $\frac{3}{16}$-in. plywood. The track layout having been carefully planned to a large scale, lines were marked on the drawing showing the outer edge of the ballast for the various sections.

The plywood was then cut into strips ; some straight, some curved, some suitable for single and some for double track, the width in each case being that between the ballast lines referred to above.

These sections or " track boards " were then laid in position, the ends trimmed to a good fit and the actual track layout drawn on top of them. They were then removed and their edges trimmed off roughly to 45 deg. using a spokeshave. This should not be done too carefully or evenly, as an improved appearance results if the angle and width of the sloping ballast edges varies slightly.

The track can now be laid directly on top of the track boards using the layout lines as a guide. This can be carried out either in position, in which

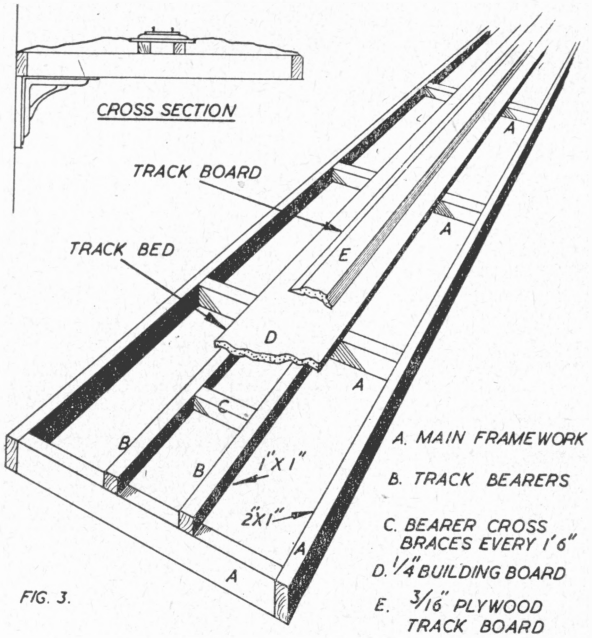


FIG. 3.

METHOD OF OPEN TOP BASEBOARD CONSTRUCTION FOR FUTURE EXTENSIONS.

case the boards must first be fixed down by screwing into them from underneath, or it can be done on the bench and the completed track sections placed and fixed in position as they are finished.

In order to get as near as possible to full size practice, it is desirable to make these track boards with lengths which are multiples of 9 in. or 18 in. in 4 mm. and 7 mm. scales respectively, thus making provision for rail lengths of 57 ft. or 65 ft., which is a sufficiently near approximation to full size rail lengths and is also an exact figure for dividing into the yard lengths in which model rail is normally supplied.

Full size sleepers for main running lines are normally spaced on 2 ft. 6 in. centres, that is, a space of 1 ft. 6 in. between adjacent edges of 1 ft. wide sleepers, and approximately 1 ft. between sleepers on each side of a rail joint. This latter figure varies with different companies and different types of track.

Using the 9 in. or 18 in. rail lengths suggested above, it will be found 23 sleepers each 4 mm. wide with 6 mm. between them can be spaced along the 9 in. length or 26 sleepers 7 mm. wide with 10.5 mm. between them along the 18 in. length with an overhang at each end of 2 mm. and 3.5 mm. respectively. Actually, the rail lengths will have to be very slightly adjusted from 9 in. = 229 mm. to 228 mm. and from 18 in = 457 mm. to 451.5 mm. to give the correct rail overhang at the ends of the sections. This is not, however, a disadvantage, as in curved track one rail has always to be longer than the other in any case. For the benefit of newcomers to the hobby, it may be said that it is not necessary to cut right

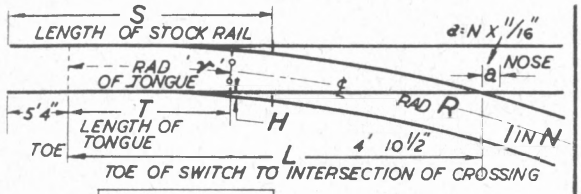


FIG. 4.

B SWITCHES	
SWITCH TONGUE T	22' 6"
STOCK RAIL S	30' 0"
TONGUE RADIUS r	730'
OPENING AT HEEL H	10"

N	R	L
6	310'	57' 8 7/8"
6 1/4	340'	58' 10 1/8"
6 1/2	371'	59' 11 1/16"
6 3/4	405'	61' 0"
7	439'	62' 0 3/4"
7 1/4	478'	63' 0 7/8"
7 1/2	516'	64' 1 1/8"
7 3/4	560'	65' 0 7/16"
8	603'	66' 0 1/2"
8 1/4	652'	66' 11 7/8"
8 1/2	702'	67' 11 1/2"

$$L = \frac{7{\cdot}75\,N}{1+{\cdot}0525\,N} + 22{\cdot}38$$

$$N = \sqrt{\frac{R}{{\cdot}0028\,R + 7{\cdot}75}}$$

$$R = \frac{7{\cdot}75\,N^2}{1-{\cdot}0028\,N^2}$$

TABLE OF FROG DIMNS TO SUIT FIG. 4.

1 IN N	A	F	G
6	1' 2 5/8"	11' 7 7/8"	1' 11 15/16"
6¼	1' 3 1/4"	11' 7 11/16"	1' 11"
6½	1' 3 7/8"	11' 7 17/32"	1' 10 1/16"
6¾	1' 4 7/16"	11' 7 3/8"	1' 9 1/4"
7	1' 5 1/16"	11' 7 3/16"	1' 8 1/2"
7¼	1' 5 11/16"	11' 7"	1' 7 13/16"
7½	1' 6 1/4"	11' 6 27/32"	1' 7 3/16"
7¾	0' 10 15/16"	11' 6 1/16"	1' 6 9/16"
8	0' 11 1/2"	11' 6 1/2"	1' 5 15/16"
8¼	1' 0 3/16"	11' 6 5/16"	1' 5 7/16"
8½	1' 0 13/16"	11' 6 5/32"	1' 4 15/16"

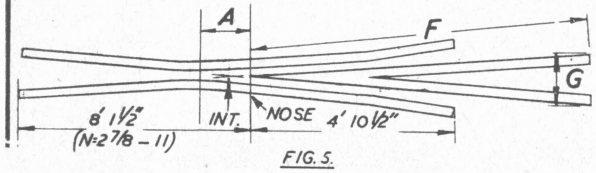


FIG. 5.

through the rails at the intermediate "joints" and thus use an inordinate number of fish plates; it is quite sufficient to cut the top surface at the appropriate point to a depth of, say, 0.5 mm. using a fine saw.

The use of these track boards has several marked advantages: firstly, it produces lengths of track which are complete in themselves including ballast, third rail or contact studs, etc., and which can be taken up and relaid as required should it be desired to make any alteration. Secondly, it permits of much work being done on the bench and so alleviates the necessity of working to close limits in what are sometimes very inaccessible or uncomfortable positions. Thirdly, it permits super elevation to be applied very easily where required by inserting suitable packing under the boards at the appropriate points. Levelling of track in both longitudinal and transverse directions is also greatly facilitated. In 7 mm. scale, it does away with the necessity for battens and, for indoor working, permits the use of card sleepers.

As in any branch of model railway work, the very first principle of tracklaying and point construction is to study full size practice. In the writer's opinion, little information has been provided as to the underlying principles of full size trackwork and their application or adaption to model problems. Everyone knows that a full size track consists of two parallel steel rails, but the writer has found that few people know that these rails are not upright, but lean inwards at an angle of 1 in 20.

Many modellers when laying a curve do not bother about getting rail joints opposite each other, an endless source of trouble if the track ever has to be relaid. Nor do they provide transition curves or super elevation, both of which features assist good running. The writer has seen the most remarkable arrangements in use to get a train from one line to another, "Because proper points are so difficult to make and don't work properly!" Yet these same model engineers will spend hours putting some odd little knob in the most inaccessible place on a locomotive.

Since the track affects the running of every item of rolling stock, it is well worth spending a little more time and trouble on it in its early stages, so as to ensure trouble-free running in the end. After all, it would be useless if the "Cornish Riviera Express" or "Royal Scot" would only pass through Reading or Crewe six times out of ten, and be violently derailed on the remaining four! Such a suggestion should be equally ridiculous on a model railway of any gauge whether built to fine or coarse standards.

Our English railways have the finest track in the world and our railway engineers over the last hundred years or so have constantly endeavoured to improve it. Their work deserves a close study, which will give a rich reward to the modeller in reliable running and correct appearance.

Open Top Baseboard Construction

Considering first the foundation of the track, as modellers we must break with full size practice except in one item. We must have a firm and reliable foundation. Fig. 3 shows the method which is being used on all future permanent sections of the Westcester and Abbotsbridge Division. The main section frames are made up of 2 in. × 1 in. timber and suitably shaped as the area demands. Additional 1 in. × 1 in. timbers are put in as required, so as to give a spacing of not more than 1 ft. 6 in. Where tracks are to go 1 in. × 1 in. material is laid to the position of the track bed; if this is very wide, say three or more parallel tracks in 7 mm. scale, additional 1 in. × 1 in. timbers should be laid. Due account of variations in levels must be taken at this stage. The 1 in. × 1 in. timber forming the longitudinal bearers for the track bed should have additional pieces of the same material laid transversely at not more than 1 ft. 6 in. centres, so as to form a kind of "ladder" structure. A layer of ¼-in. building board to form the track bed is now laid on these 1 in. × 1 in. timbers. The width of the track bed will vary according to requirements, but must be a minimum of 3 ft., (i.e. 12 or 21 mm.) beyond the ballast line.

It is on this foundation that the plywood trackboards are fixed, remembering that they should be screwed in from underneath. Always fix trackboards from underneath, then if the track ever has to be removed, it can be released easily and without damage. If it is screwed from above, it will be found that screw heads always hide under ballast or sleepers, and by the time they have been found and removed the track will be useless. After preparation of the track boards as described above, the card sleepers are laid in the appropriate positions, which can be done either on the bench or in their final location on the track bed. They are secured by means of brass gimp pins. The board and sleepers are next given a coat of matt rust brown paint. If desired, the sleepers themselves can be painted black. The chairs are next fitted to the sleepers, their positions being shown by the jig marked holes in the sleepers. At this stage ballasting is carried out. Ordinary carpenter's glue is painted into the spaces surrounding the chaired sleepers and ERG ballast liberally sprinkled over the boards and well pressed down. Do not be sparing at this stage, as although it appears that a lot of ballast is being used, the amount which is reclaimed when the glue is dry and the surplus removed is astounding. The rail is next dropped into the chairs and keys and fish plates added, after which the track is carefully checked for alignment and gauge ; an occasional tap with a hammer and wooden drift is all that is usually necessary to produce a really straight line or a smooth curve. On the W. & A. division a proportion of the track was laid using slide-on chairs produced by R. A. Kennedy to suit Rocket Precision rail ; if these are used the ballasting should be carried out immediately after sleepers have been laid and painted. Another service offered by Kennedy's used on the W. & A. div. is the "rust" plating of rail and

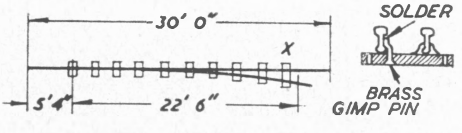


FIG.6. SWITCH AND STOCK RAIL DIMENSIONS ALSO DETAIL OF 'WESSEX' SWITCH HINGE

chairs. This can be carried out on brass, nickel silver or white metal and is well worth the few additional coppers which they charge for the tremendous advances in appearance and saving in time over painted rail and chairs. They produce a variation colouring from a real rust red to the bluish grey tint often seen on new rolled steel rails, and the process has the added advantage that locomotives will run perfectly on the "rusty" surface. In sidings which get little wear the track can be left as laid, and a few dyed sawdust "weeds" added to the ballast produce a most realistic effect, yet locomotives will operate on this as well as on the main lines when the tops of the rails have been sandpapered to permit the nickel silver to show through.

Points and Crossings

The above remarks apply to normal straight and curved track. When the question of points and crossings arises we may take a few leaves from the full size book.

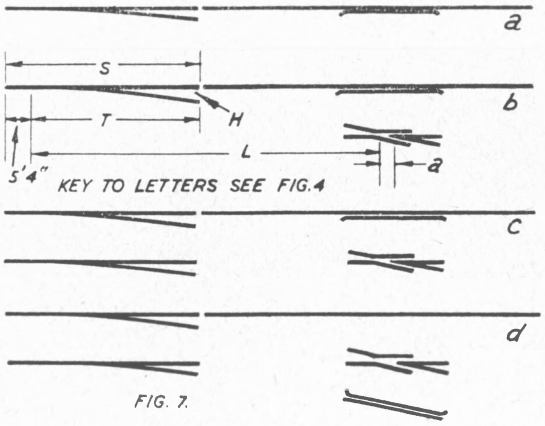


FIG. 7.

It is common practice in model work to refer to a pair of points of so many feet radius. This is seldom done in full-size practice, as the point radius is fixed by the crossing angle and vice-versa, and it is this crossing angle which is usually quoted. The writer, through the courtesy of the Great Western Railway Company, was provided with a series of permanent way instruction sheets which detail a considerable amount of information applicable to model points and crossings.

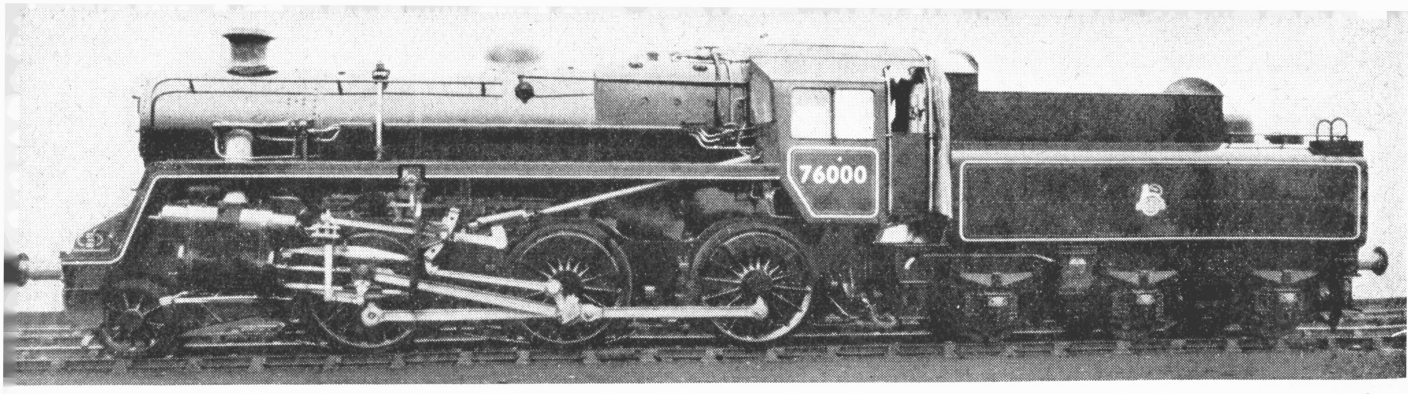
Figs. 4 and 5 have been drawn and dimensioned full-size from these sheets, in order to be of use to modellers in both scales, the crossing angles are from 1 in 8½ to 1 in 6 and it is only a matter of converting the dimensions to provide details in any given scale.

On the W. & A. Division points and crossings of various angles, including crossovers on curves, have been laid to these figures and the results have been most satisfactory. It is important to note that the actual crossing, i.e. the frog, is straight in both directions, and if laid as shown very much better running results, to say nothing of the fact that the construction of the frog is greatly simplified.

On the instruction sheets in the writer's possession tables of dimensions for various angles are given, but in order to simplify finding dimensions to suit varying angles and radii, the formulae for arriving at them are given. In full-size practice these are applicable to crossing angles between 1 in 6 and 1 in 8½, but experience shows that they will work in model practice down to a crossing angle of 1 in 4 and a radius of 130 ft. 6 in. (i.e. a 3 ft. radius curve in 7 mm. scale).

In building up points in model form the true intersection point of the rails, or, alternatively, the commencement of the stock rails may be taken as the starting point of the setting out. On the W. & A. Division the constructional method adopted has been

(*Continued on page* 40)



The new Standard Class 4 2-6-0

RAILWAY TOPICS by J. N. Maskelyne, A.I.Loco.E.

British Railways Standard Class 4 Locomotive

ENGINE No. 76000, the first of twenty-five 2-6-0 Class 4 engines now being built by Horwich and Doncaster Works, was recently completed at Horwich.

Designed and built under the direction of Mr. R. A. Riddles, Member for Mechanical and Electrical Engineering, these engines follow very closely the other British Railways' standard engines already in service, many details being interchangeable.

The parent office for design of this engine is Doncaster, but the 3,500-gallon capacity tender is the same as that already in existence and previously attached to the 4-6-0 class 4 engines built at Swindon.

Engines Nos. 76000-76004 are allocated to the Scottish Region, 76005-76019 to the Southern Region and 76020-76024 to the North Eastern Region.

The boiler follows very closely the design of that of the L.M.R. Class 4, 2-6-0 engine, the flanged plates being common to both as is the working pressure of 225 lb. per sq. in.

A slide valve type regulator is fitted into the dome and operated by an external pull rod connected to a transverse shaft which works through a stuffing box on the second barrel plate. Boiler mountings, such as the manifold, safety valves, clack valves, etc., are as fitted to other standard British Railways' locomotives with their controls operated in a similar manner.

All firebox water space stays are of monel metal and fitted with steel nuts inside the firebox; longitudinal and transverse stays are of steel.

Both the boiler and firebox are lagged with fibreglass mattresses.

The rocking grate is transversely split into two halves, each half consisting of three rocking sections, with 14 renewable firebars in each section. Each half grate can be rocked separately from the footplate and for two different travels as on other British Railways' engines, a short travel being used for agitating the fire while the engine is on the road. A two hopper, self emptying ashpan is fitted, having butterfly doors operated by a hand lever from ground level and its damper doors, fore and aft, being controlled separately by standard hand wheels and screw gear.

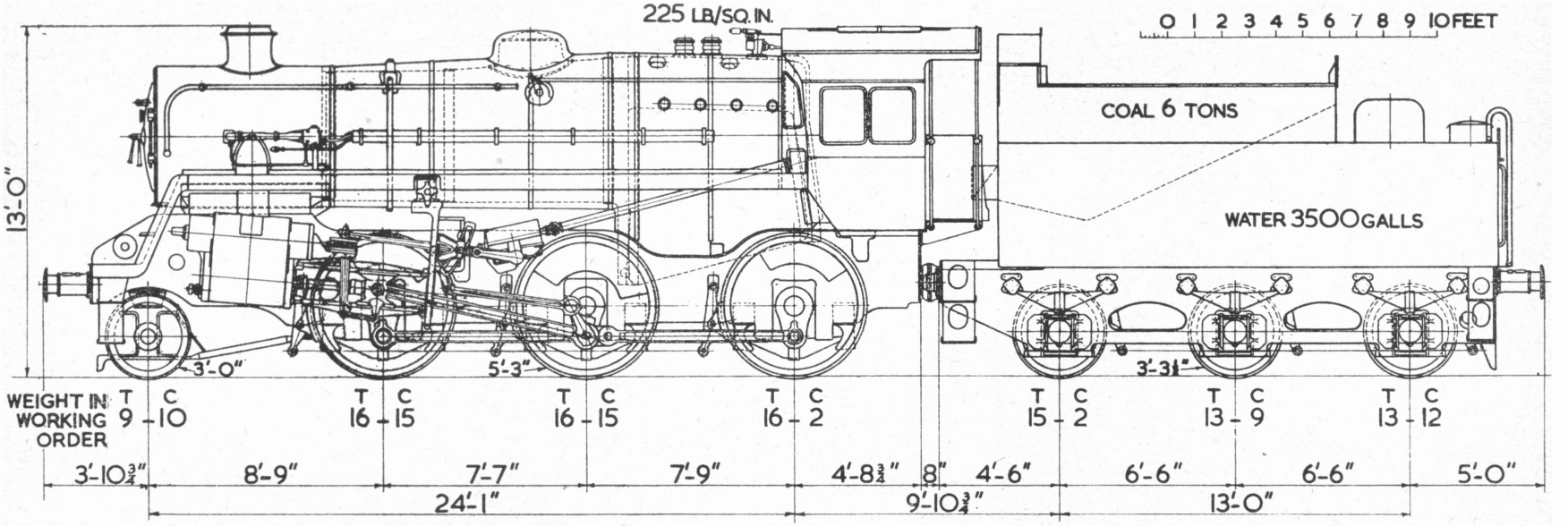
The smokebox is of the self cleaning, cylindrical type and cradled by a fabricated saddle. The blast pipe has the standard type plain circular cap, with a $4\frac{3}{8}$ in. dia. nozzle and incorporates the blower.

The main frames are of $1\frac{1}{8}$ in. thick plates, spaced 4 ft. $1\frac{1}{2}$ in. apart, and well braced both horizontally and vertically by fabricated plate stays. Pin jointed cross stays are attached to each of the axlebox guides, both the guides and axleboxes being fitted with manganese steel liners; those on the guides being bolted in position and the others welded to the axleboxes. The engine has plain bearings on all wheels pressed-in white metalled brasses in cast steel axleboxes for the coupled axles, and for the pony truck boxes, white metalled bronze castings.

The pony truck, springs and brakegear are standard items, as also is the method of carrying the boiler hind end by brackets on the dragbox. As well as fulfilling its normal duties, and supporting the boiler, the fabricated dragbox also carries the steam brake cylinder and brake shaft brackets.

The motion itself follows very closely that of the Class 3 tank engines having the same valve events diagram, and many parts are used on both engines. As on all other British Railways standard locomotives to date, the lubrication of motion pins and reversing gear is by grease nipple and gun. Cylinder and valve chest lubrication is by atomised oil, delivered by mechanical lubricators. The atomiser steam on these engines is controlled by the cylinder cock lever, a notice to this effect being carried in the cab. Standard steam operated cylinder cocks are used and the cylinder covers are fitted with relief valves. Provision is made for the reversing screw on the l.h. reversing shaft bracket, which is operated by the now familiar end-on hand wheel in the cab.

The B.R. Type 2 tender has a water capacity of 3,500 gallons and carries 6 tons of coal. The tender is designed with provision for water pick-up gear, but the external equipment is not fitted to the tenders of these particular locomotives.



BRITISH RAILWAYS STANDARD CLASS 4 2-6-0 LOCOMOTIVE

TABLE OF LEADING DIMENSIONS

Length over buffers : 55 ft. 10½ in.
Total wheelbase : 46 ft. 11⅜ in.
Width over platform : 8 ft. 5 in.
Width over cylinders : 8 ft. 6⅝ in.
Width over buffer beam : 7 ft. 7⅝ in.
Cylinders (two) : 17½ in. x 26 in.
Tractive effort : 24, 170 lb.
Adhesion factor : 4.59
Brake per cent.: Engine and Tender 64.12.
Minimum radius curve (with specified gauge widening) : 4½ chains.
Boiler type : B.R.7.
Boiler barrel diameter (outside) : 4 ft. 9½ in. increasing to 5 ft. 3 in.

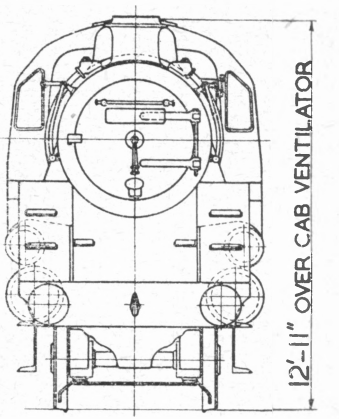
Firebox (outside) : 7 ft. 6 in. long x 4 ft. 0½ in. wide.
Tubes : 24 large, 5⅛ in. o.d. x 7 s.w.g. 154 small, 1⅝ in. o.d. x 12 s.w.g.
Superheater elements : 1⅝ in. o.d. x 10 s.w.g.
Length between tubeplates : 10 ft. 10½ in.

Heating surfaces :	sq. ft.
Tubes	1,061
Firebox	131
Total evaporative	1,192
Superheater	254

Free flue area : 3.8 sq. ft.
Grate area : 23 sq. ft.

Weights :	Full		Empty		
	tons	cwt.	tons	cwt.	qr.
Engine ...	59	2	55	5	2
Tender ...	42	3	20	10	2
Total ...	101	5	75	16	0

Tender type : B.R.2.
Tender capacity :
Coal, 6 tons.
Water, 3,500 gallons



Talking Shop

WRENN FLEXIBLE TRACK
MK. II PECO-SIMPLEX COUPLER
FLAT-BOTTOM ALLOY RAIL
BRADSHAW MODEL PRODUCTS
MASTER MODEL ACCESSORIES
ROGERSON " TYPE D " SOLENOID MOTOR

FOR those of you who are thinking of using " Wrenn Flexible Track " on your layout, I have something of interest this month, because the manufacturers, G. & R. WRENN, of Blackheath, London, have not only sent along two lengths of their track for inspection, but have also given a number of suggestions for installing the track, based upon the queries they have received from customers.

The track itself comes in 36 inch straight lengths for 2-rail or centre third rail and in construction it matches the points and crossings made by the same firm, having steel rail with a rustproof coating, fixed to a stamped-out fibre sleeper base with the Wrenn patent eyelet chairs. To curve the track the centre fibre webs joining the sleepers between every pair of eyelet chairs are cut out on one side only. The track can then be easily curved in the hands to any radius though it is best to use some sort of a former (a chair back is one possibility). Having done this myself, I can say that a length will retain its curve without any fixing and can be straightened and re-curved any number of times. Those of you who like laying out transition curves will find this track a boon, as the alignment and curvature can be adjusted to a nicety.

The makers suggest that six or eight No. 0 or 1 countersunk woodscrews about $\frac{3}{8}$ in. long could be used for fixing each yard length, one screw going each end with the others spaced out in between. Panel pins or brads may be used, but in either case care should be taken to drill the holes centrally in the sleepers.

The fishplates are made an exact fit on the rail section and give a very firm grip. To get them on easily the makers suggest tapering the rail ends with a file to provide a " lead." This is fairly common practice in all gauges but worth mentioning for newcomers who haven't yet " tumbled to it."

Wrenn flexible track is a sound engineering job but I wish the rail and sleeper sizes were to B.R.M.S.B. dimensions instead of being slightly larger—though I think this comment should be classified as a personal preference rather than a technical criticism.

One last item of news from Blackheath concerns the point lever—a neat design at an attractive price, made in nickel plated steel with a stove enamelled base. This has a positive lock and is available with $\frac{1}{8}$ in. or $\frac{3}{16}$ in. throw. It can be used for any make of point provided the throw is suitable.

The " Mark II " Peco-Simplex Auto-Coupler

During the past few months a number of letters have appeared in the " Mailbag " columns on the subject of auto-coupling, with particular reference to the spring clips on the Peco-Simplex type. Mr. A. T. Horton, in the November, 1952 MODEL RAILWAY NEWS, mentioned the improved spring clip fitted to the Mark II coupler and the manufacturers, THE PRITCHARD PATENT PRODUCT CO. LTD., of Seaton, Devon, have just given me the inside story of this development. I can do no better than quote their letter :—

" When we first introduced the Simplex coupling, the stud was held in position by a small separate spring clip, and we were soon to find in practice that this spring had a habit of jumping off in exactly the way experienced by your correspondent. However, we modified the design at the very earliest opportunity to overcome this difficulty . . . You will see from the sample we are sending you that the spring is rigidly held in the bracket and the stud now acts in exactly the same way as a snap fastener. This means that, after the bracket has been fixed to the wagon or other vehicle, the coupling proper can be removed and refixed as often as one may like without any attention to the bracket. This is particularly advantageous when using our coupling on a hand made scale model which may be required for exhibition display purposes as well as running. When on show the coupling hook can be taken off just like ' that ' and when in use just put back. This is also made possible since the Simplex coupling does not in any way interfere with the buffer beam or the fitting of scale 3-link couplings if so desired."

Well, there you are—and I only need to endorse these comments as I have examined the samples myself. The stud is held firmly in place whilst the hook is quite free to move through the requisite coupling movement.

Incidentally, the very complete instruction sheet issued with Mark I is enclosed with every pair of Mark II couplers, with the drawings and description modified to describe the improved spring clip.

Flat-Bottom Alloy Rail

FENLOW PRODUCTS LTD., of Weybridge, Surrey, can supply flat-bottom rustless alloy rail in a number of sections. The size most likely to interest readers of this journal is the smallest one—$\frac{3}{16}$ in. high—which is suitable for Gauge " O " or " 1." This rail is supplied in 4 ft. lengths at about half the present price of brass bullhead rail. For anyone who does not insist upon bullhead rail this alloy section presents definite possibilities.

Having a certain amount of aluminium in it, soldering for bonding purposes is not possible but I have found that thick copper wire pressed through an interference fit hole in the end, and turned under the base of the rail, is quite effective. For indoor electric railways the rail should prove quite satisfactory. Out in the garden is another matter. In my experience, this rail left outdoors soon suffers from mild corrosion in the form of a light grey dusty coating which effectively prevents electrical contact through the locomotive pick up, even at 50

volts. It can, of course, be cleaned off but this is a tiresome job on extensive layouts. I understand that this corrosion depends largely on the chemicals found in the local atmosphere and may not occur in some parts of the country. The rail is, however, particularly affected by sea air but, of course, railways using steam or clockwork propulsion will not be troubled as this corrosion does not seem to materially damage the rail to impair the running of the stock but merely prevents electrical conduction.

Construction of the track is very easy. The rail is easily curved and can be fixed to the sleepers in a variety of ways, my pet method being to use $\frac{3}{8}$ in. brass nails hammered in on either side of the rail until the heads are about $\frac{1}{16}$ in. above the sleeper. The two nails are then clenched over the base of the rail with pliers and in this way afford a stronger fixing than the average slide-on chair with bullhead rail.

Standard fishplates can be used, simply by filing away the base of the rails to the extent of half a fishplate at each end, until they slide firmly on.

Bradshaw Model Products Limited

R. G. Bradshaw, until now manager of the model railway department at GEORGE BRADSHAW (SUSSEX) LTD., tells me that owing to the increased business, coupled with the addition of a manufacturing side, a new company was officially formed on February 1st for the purpose of carrying on the business previously dealt with by the model railway department. There will be no alteration as far as supplies or methods of business are concerned but, with the formation of this company, Mr. Bradshaw will be able to offer an even more efficient service and a wider range of goods.

The name of the new company is BRADSHAW MODEL PRODUCTS LIMITED and the registered address remains at 5-6 Western Road, Hove, Sussex. All correspondence relating to model railway supplies should be addressed to the new company at this address.

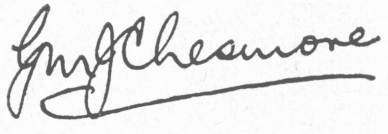
More Master Models

B. J. WARD LTD., of London, have shown me samples of five additions to their range of " OO " gauge accessories. Set No. 38 contains a large sand bin, a set of four fire buckets and a workman with a shovel, presumably waiting around for a convenient fire upon which to shovel sand ! Next there is a neat and realistic station seat and nameboard. Set No. 43 contains a concrete type cycle stand with four detachable bicycles. These are excellent castings and can be left in the stand or propped up against a lamp-post. Modellers who have layouts with room for a garage in their roadway system will find the Esso pumps in Set No. 44 a colourful addition. A small wooden platelayers' hut is also produced by this firm. It sports a " brick " built chimney and a pile of imitation fuel outside. The general finish is in tar black and no modeller will have difficulty in finding a location for this most characteristic piece of railway equipment.

Rogerson Type " D " Solenoid Motor

The well-known range of point motors produced by JAMES ROGERSON, of Guildford, has been joined recently by the type " D " motor which has two novel features. First, the locking of the throw is maintained by a compression spring attached through a lever to the operating arm. Second, the crank arm contains a slot in which the point rod pivot can be fixed to give anything from 5/64 in. to $\frac{3}{16}$ in. throw. What is more, the throw can be adjusted after the motor has been installed. The operating voltages are 12-20 d.c. or 15-24 a.c., and, on test, the motor consumed 2 amps at 12 V. d.c. The thrust at this voltage is $4\frac{1}{2}$ oz. at $\frac{3}{16}$ in. throw to 6 oz. at 5/64 in. throw. The minimum thrust provided by the locking spring is 3 oz. Overall dimensions of the motor are: Length, $2\frac{3}{4}$ in.; width 2 in.; height $\frac{7}{8}$ in.

The motor is well and neatly made and marketed at a most reasonable price.



ATTENTION!

We wish to draw readers' close attention to the following letter which we have received from Mr. W. H. Tate, of 64, Poplar Grove, Sale, Manchester (SALe 1321), who is Hon. Secretary of the Manchester Model Railway Society:—

DEAR SIR,—On the night of Thursday, January 8th, 1953, the clubroom of this society, at Old Trafford Station, Manchester, was again broken into, and the main part of the society's eighteen-millimetre gauge layout was stolen.

The stolen portion of this layout, which was originally built by the late Mr. Alex. F. Jackson, and which was dismantled at the time, consists of five sections forming a terminal station with generous siding accommodation, entered from a single main line.

The sections are built on a framework of 2 in. × $\frac{3}{4}$ in. (approx.) timber, covered with $\frac{1}{2}$ in. " Celotex " pulpboard; three of these go side by side to form the station area and the other two go end to end on the centre one. The total length is approximately 12 ft. The trackwork is exact scale nickel silver rail soldered to tinned steel soleplates and impregnated card sleepers of the builder's own manufacture. Sand is used for ballast. One small piece of " Celotex " near the narrowest part of the trackwork has been cut away and patched with another and the 6 ft. radius point which should lie here is still in our possession. Nearby is an outside double slip diamond crossing of much newer construction than the remainder of the trackwork. A rail-built stop block was knocked from one of the sidings and was recovered in the vicinity.

The wiring underneath the base is extremely complex and is mainly executed in PVC-covered wire. Control gear has been removed and only a temporary one is in place, consisting of a moulded alloy box (U.S. Army Jack Box BC-213-B) screwed to the framework and fitted with a single Ohmite rheostat and D.P.D.T. tumbler reversing switch. The rheostat was wired in reverse, due to previous damage.

Electrical connection between sections is achieved by means of multi-pin plugs of the valve-base type, which also serve to locate the sections. Points are operated by GPO-type relays fitted with gainstroke arms which actuate rockers fitted directly under the point stretchers. These relays also select polarity, etc., and the whole system is two-rail. Near the control point the line runs under a built-up embankment some three or four inches high, coloured green.

Workmanship is of a very high order, although the model is comparatively incomplete. The station consists of hardboard platforms only, painted grey. There is no signalling.

I shall be most grateful if you will give due publicity to this theft, and, if any relevant information should come to your notice, if you would kindly pass this to me at the above address, or to the Lancashire County Constabulary, Northumberland Road, Old Trafford, or to any police station.

Yours faithfully,

W. H. TATE.
Hon. Secretary.

WITH THE CLUBS

Birmingham Model Railway Club
MEETINGS TO APRIL 9TH, 1953.

All meetings at St. Thomas's School, Granville Street, commencing at 6.45 p.m.

Thursday, February 5th. Jumble sale.
Wednesday, February 11th. Track night.
Thursday, February 19th. Track night, or talk on cardboard modelling by Mr. Driver of Manchester M.R. Society.
Wednesday, February 25th. Track night.
Thursday, March 5th. Film show of Bassett-Lowke films.
Wednesday, March 11th. Track night.
Thursday, March 19th. Track night of Mr. Driver. (See Feb. 19th.)
Wednesday, March 25th. Annual general meeting.
Thursday, April 2nd. No meeting.
Thursday, April 9th. Track night.
Next committee meeting—Tuesday, March 17th, 1953.

During the forthcoming session, "Track Nights" will combine "Exhibition Track Construction" and "Test Track Operation." Members are invited to bring their own models, finished or unfinished, on any of these nights, for demonstration running and general discussion as usual. With the object of accelerating its completion, the exhibition track will also be available for volunteers to work on, so no one need be short of something to do.

Meetings for February 19th and March 19th may have to be altered. If so, members will be advised by post at least seven days beforehand.

Hon. Secretary : JOSEPH H. MOSS, 163, Stonor Road, Hall Green, Birmingham, 13.

Bristol Railway Circle

Fixtures for February, 1953 :—

Saturday, 7th. 7.30 p.m. Business meeting.
Saturday, 14th. 7.30 p.m. "Ten Minute Papers by Members." Members willing to give short talks, whether illustrated by photographs or not, are asked to contact the secretary by Saturday, January 31st. A blackboard and easel will be available for chalk diagrams.
Saturday, 28th. 7.30 p.m. Display of postcards on the screen by Mr. J. F. Burrell "From the Isle of Wight to Cardigan Bay."

All other Saturdays and all Tuesdays during the above period are club nights. All Wednesdays are "OO" nights.

Hon. Secretary : J. F. BURRELL, 80, Longmead Avenue, Bristol, 7.

The Bedford Model Engineering Society
OPEN EXHIBITION OF MODELS

Dates : April 4th, 6th and 7th, 1953.
Times : 4th—2 p.m. to 9 p.m. ; 6th—10 a.m. to 9 p.m. ; 7th—10 a.m. to 7 p.m.
At St. Peter's Hall, St. Peter's Street, Bedford.
Entries : Loan and competition section by February 28th, 1953.
Entry forms from Exhibition Secretary, MR. G. B. SPURGEON, 61a, Goldington Road, Bedford.

Wimbledon Model Railway Club

Our arrangements for February are :—Wednesday, 11th, a talk on "Railcars" by R. K. Kirkland, B.A. ; Wednesday, 25th, Photographic Evening. Meetings are held at 32, Worple Road, Wimbledon, London, S.W.19, and commence at 7.30 p.m. We are always pleased to welcome visitors and prospective members.

Please note new address of Hon. Secretary : R. C. J. DAY, Flat 1, 34, Maple Road, Surbiton, Surrey.

Ilford and West Essex Model Railway Club

Fixtures : Februrary 4th : Coachbuilding demonstration by C. T. Standfast ; February 18th : Mr. H. M. Sell, of Messrs. Bassett-Lowke Ltd.

March 4th : Annual competition ; March 6th : Annual club dinner at the Cauliflower Hotel, Seven Kings March 18th : T. S. Lascelles, Esq.

Hon. Secretary : R. L. RIDDLE, 36, Vernon Road, Seven Kings, Essex. Telephone No. : Seven Kings 5334.

TRACKWORK IN WESSEX

(*Continued from page* 35)

as follows. Two stock rails each 30 ft. long and two switchrails each 22 ft. 6 in. long are prepared, and, after making the necessary joggle at a point 5 ft. 4 in. from the ends of the stock rails, flat strips of brass of a suitable length to form slide chairs are soldered to them, in the positions indicated on the detail drawing. The last of these slide chairs, the one marked "X" in Fig. 6, has an additional hole drilled through it and countersunk on the underside so as to take the head of a $\frac{1}{2}$-in. brass gimp pin. The pin is inserted, bent over, and soldered to the switch rail's web as shown in the small sketch. This then acts as the hinge of the switch rail. The frog is then built up to the dimensions shown, again using brass strip $\frac{1}{8}$ in. or $\frac{3}{16}$ in. $\times$ $\frac{1}{16}$ in. in place of the special chairs used in full size practice, and soldering the rail to it.

The sleepers having been placed in position on the track board and the whole ballasted, the straight stock rail is laid in position as shown in Fig. 7, also the continuation straight rail including the check rail at the appropriate position. The frog is then fixed down at the correct point, not forgetting the allowance between the theoretical intersection and the actual nose. The curved stock rail is next laid down in a similar manner. Fourthly a straight piece of rail with its check rail and check rail chairs is laid parallel with the "curved" side of the frog, its length being equal to the combined lengths of the wing and vee-rails. Finally the remaining pieces of plain rail are fitted into position, the curves being laid to the designed radius.

The only job now left is the connecting up of the switch rails. This is done by preparing a strip of Tufnol or similar insulating material and drilling holes through it countersunk on the underside to take $\frac{1}{2}$ in. brass gimp pins. The position of the holes depends on the throw required on the blades. In any case this throw ought to be such as to leave a clearance of at least 1 mm. between the back of a wheel and the unused blade.

On the W. & A. Division the figure is 3 mm. which is of course a shade over 5 in. as against the $4\frac{1}{2}$ in. specified for full size working. If the track is three rail or stud contact the Tufnol referred to above may be replaced by a brass strip. Pins are inserted from the underside of the strip, bent over, and soldered to the rails as described for the switch rail hinge.

One further matter should be mentioned in conclusion, and that is the tremendously increased reliability in running which is obtained on good, bad, or indifferent track, when rolling stock and locomotives are fitted with sprung wheels. All stock and locomotives built in the Abbotsbridge shops are so fitted and the work is extremely simple if tackled properly. The difference between the running of sprung and unsprung stock over any given section of track will be found fully to justify the additional work involved in springing.

There are of course many other points such as transition curves, superelevation, point motors, etc., which cannot be covered in the present space, but the above notes give some idea of basic trackwork.

FOR THE BOOKSHELF

Locomotive Cavalcade, 1920-1951, by H. C. Casserley. (Published by the author, at Ravensbourne, Berkhamsted, Herts.) 216 pages, 3 plates in colour, 300 illustrations. Price, by post, 20s. 0d.

For many years, Mr. Casserley has been well known as a photographer whose camera has recorded locomotives, working and standing, in almost every corner of the British Isles. In this book he has selected more than 300 of his choicest photographs and then arranged them as nearly as possible in chronological order, to form a pictorial record of locomotive happenings in England, Scotland and Ireland, year by year, from 1920 till 1951. At the same time, he has written a most interesting and readable text round this very striking collection of pictures. The result is a book of immediate value which, however, cannot fail to increase as time moves on.

The selection of the material must have entailed not only a considerable amount of research and planning, but also a great deal of thought; in addition, the decision to undertake the private publication indicates a commendable enterprise that is somewhat rare in these difficult days. In these circumstances the book is a remarkably fine production; it is clearly printed on art-paper throughout, which means that the best has been obtained from the illustrations. The coloured plates are timely and useful, though to obtain the best effect from these they should be viewed in the brightest light, of course. They consist of two whole-page plates and the frontispiece, which is made up of eight small reproductions of coloured photographs.

As a concise source of inspiration for the locomotive modeller, this book should meet with a considerable demand.

Britain's Railway Liveries, by Ernest F. Carter. (London: Burke Publishing Co. Ltd.) 320 pages, size 5½ in. by 8½ in. Eight coloured plates. Twenty pages of photographs and diagrams. Colour chart of 50 actual colours. Price 36s. net.

For a very long time, the need for such a book as this has been apparent, and the delay has obviously been due to the fact that the collation and sifting of the enormous amount of essential information must necessarily occupy a very extended period. Mr. Carter has spent something like twenty years in searching out every possible source of information, and the results are set down in his book, arranged in order of dates. It is apparent, however, that some insuperable difficulties have had to be faced. The earliest records of locomotive and rolling stock colours are few and usually conflicting and there seems now to be no possibility of ever definitely reconciling them. There is also the fact that, on many of the pre-grouping railways, painting was not always done by the same people at the same place, neither was the paint always obtained from the same source. Consequently, information left to us by the comparatively few recorders of the past tends to vary, sometimes to a marked extent. Add to this the difficulty, or rather impossibility of describing colour by words, then the nature of the task involved in compiling a book like this one becomes abundantly clear. Mr. Carter has tackled it with courage, and presents his readers with what seems to be every scrap of information that is now known on the subject.

The coloured illustrations have been very well reproduced and provide excellent visual evidence of the appearance of the locomotives they depict. The photographic reproductions have been well chosen and are of considerable interest apart from their main purpose.

The drawings and diagrams help a great deal in portraying the appearance of the details they illustrate; for they cover a very large variety of nameplates, numberplates, styles of lining, shapes of figures and letters, and so on.

There can be no doubt that the book fills a long-felt want, though we feel that, in future editions, some of the redundant text could be omitted and replaced by more illustrations. The period covered is from the earliest days of our railways up to 1947.

Railways the World Over, by G. Freeman Allen. (Hampton Court: Ian Allan Ltd., Craven House.) 128 pages, 8½ in. by 11 in. Fully illustrated. 12 coloured plates. Price 12s. 6d.

This is an excellent book of a decidedly more advanced kind than the usual "boys' book," though its chief appeal is to the younger reader desirous of acquiring knowledge of railway working in all its various features at home and abroad. The text is clearly written, and although there is much incursion into things mechanical, the descriptions never become abstruse and are backed up by many excellent and lucid drawings.

The very large number of photogravure reproductions from photographs taken in many parts of the world have been well chosen, and more than half of them are scenes in the British Isles. They enhance the interest and value of this thoroughly worthy gift-book.

Locomotives of the Premier Line in Pictures. (Hampton Court: Ian Allan Ltd.) 40 pages, size 5½ in. by 7½ in. 4 coloured plates, 92 half-tones and 1 line drawing. Price 2s. 6d.

This book contains reprints of nearly all the illustrations originally published in O. S. Nock's book, *The Premier Line*. They make up into a most interesting collection of studies of London and North Western Railway locomotives during the period 1860 to 1922, and should be in the hands of all who knew and loved the old L.N.W.R. The book is most excellent value at the price.

EDITOR'S MAILBAG

Imitating Stone

DEAR SIR,—Having a "O"-gauge Caledonian line under construction, or rather re-construction, I was much interested in Mr. H. S. Orbach's article in the September issue of the MODEL RAILWAY NEWS, describing the station buildings at Garve.

I have been trying for a long time to reproduce the type of stone construction used, which is common in Scotland and have been quite unable to achieve a realistic result.

Could Mr. Orbach please give some advice as to how this can be done, with particular reference to the exact tone of grey and the problem of imitating the effect of the odd blackened stones and the lighter ones peeling under the weather. I am sure other enthusiasts of Scottish lines would value hints on this subject.

May I say how much I still look forward to the issue each month of your valuable periodical. In the days before the war I made one or two small contributions to its reading matter ; that was when I had a line laid out of doors.

Yours faithfully,

Beeston. J. F. VAUX (COL.).

Stud Contact

DEAR SIR,—May a ham handed lawyer timidly mention his method of providing stud contact easily ? Having several hundred feet of track to tackle and shirking some thousands of soldered-joints, I use in 7 mm. (for 12 V d.c.) the OUTSIDE of old lead covered lighting cable as conductor—easily come by from electricians who are now stripping it out of houses—1-in. brass panel pins are driven through the sleepers into the lead cover—and at normal height pierce both top and bottom, leaving a much strengthened track. The area of the lead gives a first class conductor and gets over a lot of voltage drop problems. It fits exactly and snugly below the sleepers and between the battens and despite the gloomy predictions of electrical experts, in three years there is no sign of chemical action between the brass and the lead.

Whilst I am writing may I recommend "birdcage" or punch bar and wire for making durable and cheap railings almost exactly to scale.

Yours faithfully,

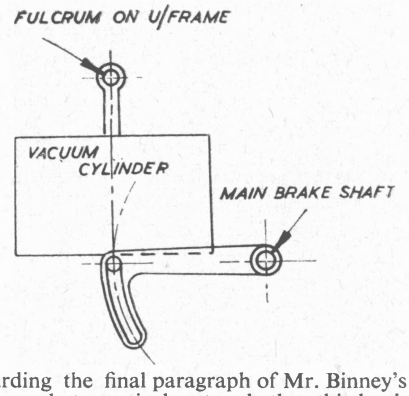
Gateshead HUGH L. SWINBURNE.

Great Western Coaches

DEAR SIR,—May I raise two points in connection with Mr. Binney's article on the underframe for G.W.R. clerestory coaches (Dec., 1952) ?

First, in the part end elevation on p. 260, the centres of the scroll irons are shown at 7 ft. 8 in. apart transversely. In the plan on p. 261 the width over solebars is shown also as 7 ft. 8 in., but since the scroll irons are slung from outside the solebars, the transverse distance between their centres must be greater than the width over solebars. Perhaps this latter dimension on the plan should read 7 ft. 3 in. or possibly 7 ft. 0 in. ?

The second point relates to the older type of vacuum brake arrangement on p. 260. It is a little difficult to visualise from the description how this mechanism worked, but it sounds as if it were somewhat similar to the arrangement found on some of the older van stock, but in this instance the purpose of the curved slotted arm was to provide the "free" linkage required if a brake is to be operated either by hand or power. The piston-rod of the vacuum cylinder must have been fulcrumed and not rigidly fixed to some point on the underframe to allow the ends of the rod fixed across the bottom of the cylinder to follow the circular path described by the end of the arm on the brake operating shaft. I give a diagrammatic sketch of this arrangement, and would be interested in Mr. Binney's further comments on the mechanism fitted to the coach underframes.



Regarding the final paragraph of Mr. Binney's article, I am somewhat sceptical as to whether this bogie design was a Churchward product. The bogies fitted to the Dean singles and the "Atbaras" had, I think, a very similar design of control, and it is relevant to recall that Churchward had not been long in office before a very different type of coach bogie was adopted based on American practice.

May I take this opportunity to say how very much I have appreciated these articles by Messrs. Longridge and Binney; I know from personal experience what a tremendous amount of research and painstaking labour these two gentlemen must have devoted to their subject. Their work is valuable not merely from the point of view of the modeller who wishes to build accurate models but also from the historical aspect. I hope that this is not the end of the story; these articles take us, I believe, roughly to the end of the Churchward regime, but save for the 57-ft. bow-ended stock of about 1925 which Sir Francis Layland-Barrett described in early volumes of THE MODEL RAILWAY NEWS, and a few other odd vehicles, the Collett era, which saw the introduction of a number of new designs, has not been touched. May we please, Mr. Editor, have a further series of articles dealing with this period ?

Yours faithfully,

Jersey, C.I. COLONEL G. G. TEMPLER.

Modifications to Ex-Government Motors

DEAR SIR,—I can fully endorse the practicability of the method described by Mr. M. H. Cox in the September issue for modifying Type CM3 motors for reversal, as I have carried out a similar modification with perfect satisfaction. In my case, however I took the brush connections from the brush holders inside the motor through a hole drilled in the casing, thus obviating the need to break any soldered joints in order to remove the brushes.

There is one feature of these and similar motors that is worth bearing in mind, however. Being originally intended to run in one direction only, the commutator is given a slight "lead" in accordance with the normal practice in such cases. This assists starting and running

in the normal direction (in this case anti-clockwise looking from the commutator towards the driving shaft) to the detriment of performance when reversed.

As these motors have ample power, I doubt whether this is likely to prove a serious drawback to anyone, and I have never found any hestitation whatever in starting under load in either direction, but I mention it as the difference in power in the two directions, though not great, is noticeable and might lead to the efficiency of the rectifier or the worm gearing being falsely doubted by the unwary.

Because of this feature, it is probably desirable, when installing a motor of this type in a locomotive, to arrange the gearing so that the greater power output is obtained in the forward running direction. Using a normal right-hand worm, Mr. Cox's arrangement does this, so all is well.

If an equal power output in either direction is considered essential, however, the simplest way of obtaining it would be to perform a major operation on the motor casing so as to rotate the brush holders slightly to cancel the shift of the commutator. Personally, however, I prefer things as they are.

Yours faithfully,

Liverpool. M. DRINKWATER.

Commercial Mechanisms

DEAR SIR,—Having recently seen the working of Mr. Fleetwood Shawe's line, I can confirm all he says in his letter which you published in the December issue. I saw the Pitman-motored 2-8-2 glide away with a 100 wagon train, and maintain the same 15 m.p.h., without a touch on the controller, for 20 minutes continuously. But perhaps the most amazing feature was to see that same 100 wagon train *backed* at the merest crawl through a double slip. The successive "rap" of each pair of buffers as the train started from rest I shall long remember. Admitted that the perfection of Mr. Shawe's track made this feat possible; the point is that he possesses a motor which will do it.

When will our manufacturers realise there is an enormous market open and waiting, too, for a British motor at a reasonable price that can do the job?

Yours faithfully,

Horsham. ERNEST ROBERTS.

Commercial Mechanisms

DEAR SIR,—Having seen the Irthing Vale Line in operation, I fully concur with Mr. Fleetwood Shawe's remarks as regards British "OO" mechanisms in the December issue.

Not only have the British motors a poor performance, but they are badly designed, too large, and far too noisy.

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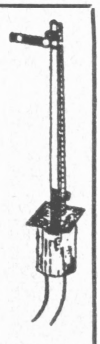

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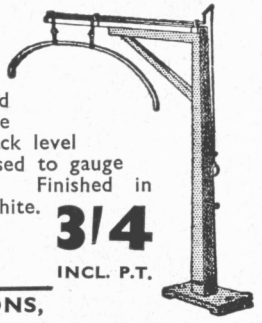

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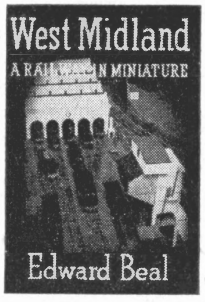

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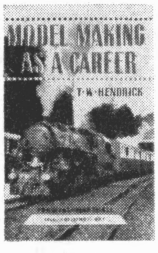

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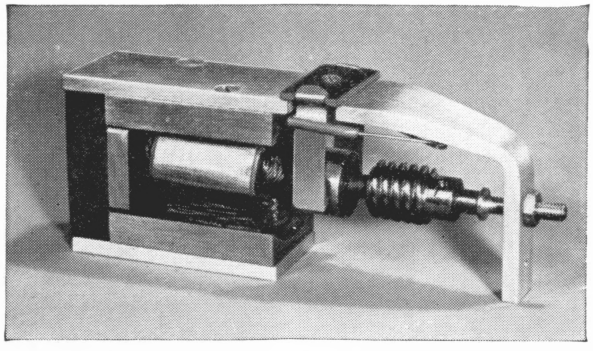

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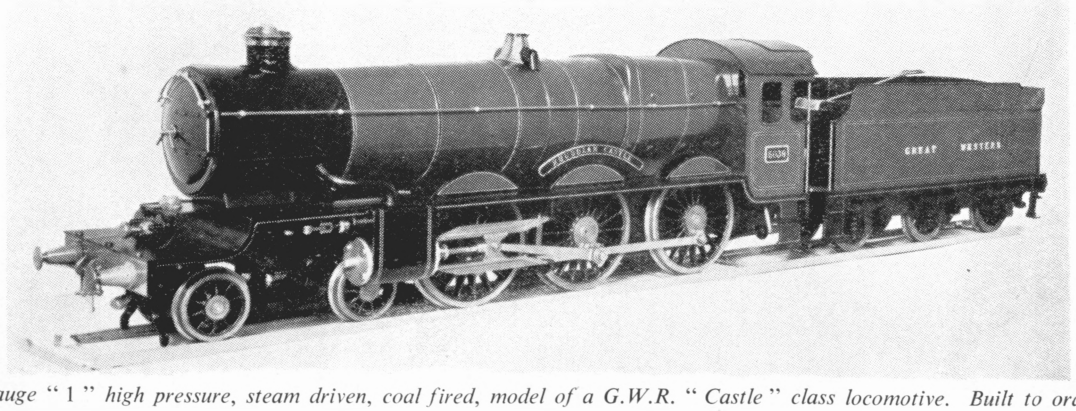

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